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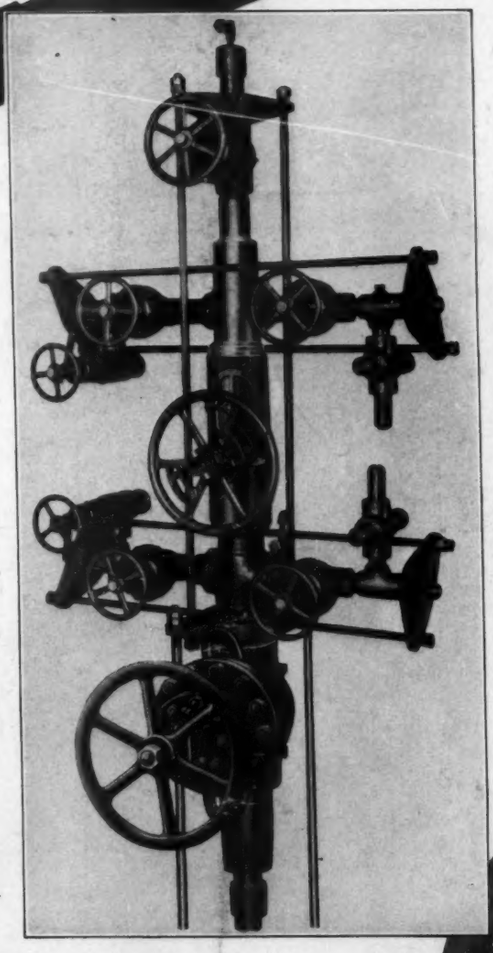

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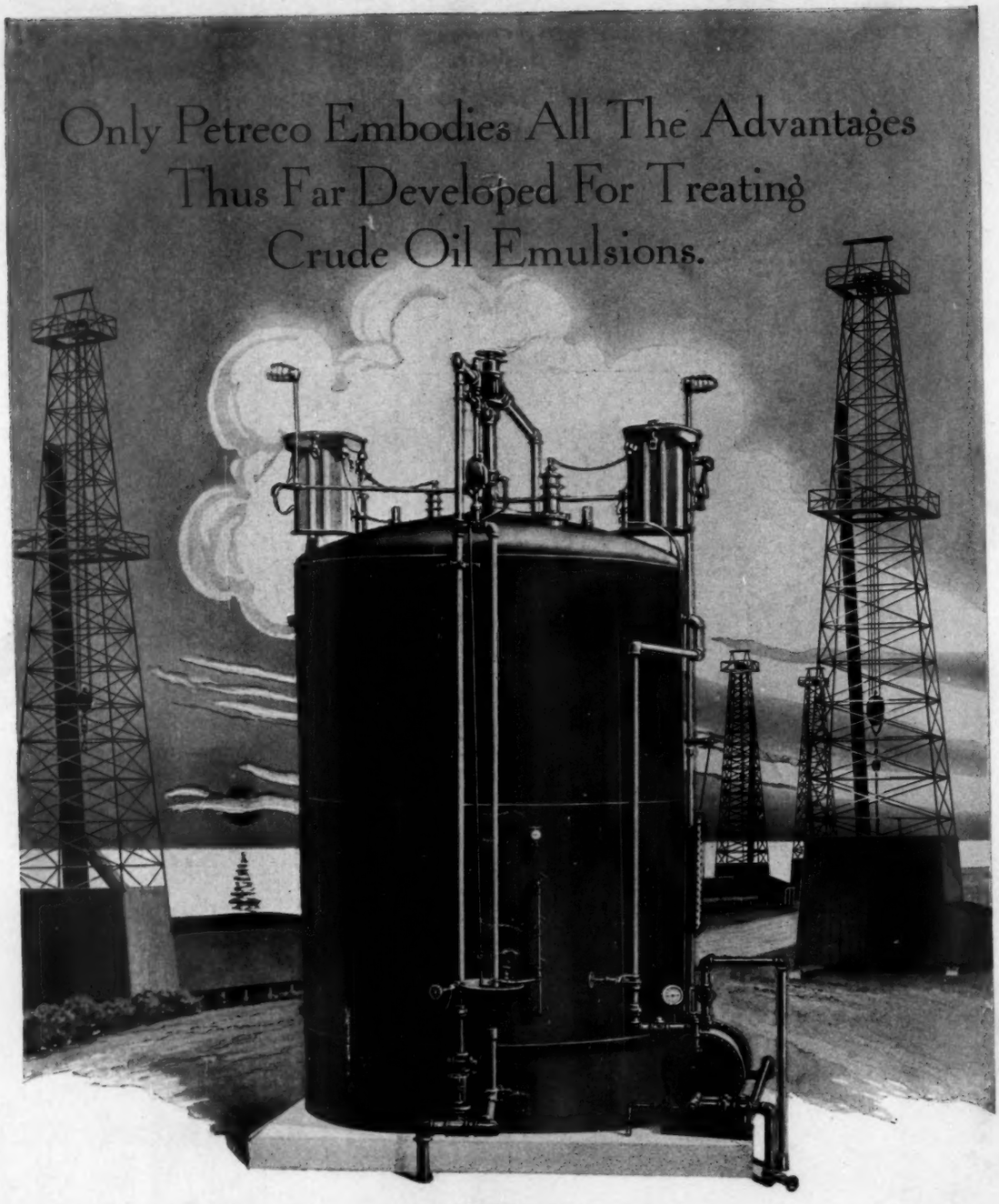

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Industry Hopeful as Government Realizes Vital Necessity of Curtailing Crude Production

By ANDREW M. ROWLEY

CHIEF interest in the code for the petroleum industry centers in the provisions designed to curtail crude oil production to market requirements. Everything depends on such curtailment. Price increases for crude oil and gasoline, shorter hours and greater employment cannot be accomplished as long as there is an overproduction of crude. The whole structure of the Industrial Recovery Act, in so far as it relates to the petroleum industry, rests on the foundation of limited crude oil production.

The output of the United States last week averaged about 615,000 barrels daily more than it did a year ago and is about 500,000 barrels daily above market requirements. That excess production must be eliminated from the picture before any progress whatever can be made towards increasing employment in the oil business and otherwise bettering conditions.

Texas, naturally, is the crucial point in the situation. All are wondering what Texas will do when the code is finally approved and placed in operation. If the Federal government can stop shipments of crude oil and gasoline from the state in excess of allocated allowables, the oil industry will be back on its feet immediately. Texas refines within its borders approximately 587,000 barrels of crude oil daily. Its production above that quantity is transported to points outside the state. Last week and for a long time past production in Texas has averaged more than 1,200,000 barrels daily.

While state co-operation is necessary to make the code effective, the oil industry, from past experience, does not place any dependence upon state authorities in enforcing proration orders. It will be up to the Federal authorities to hold production in the different states to the figures allocated.

Curtailment of production, if and when accomplished, naturally will strengthen the price structures for both crude oil and gasoline. Better prices all along the line are absolutely necessary but present conditions have not justified major purchasers in raising their posted schedules. There is plenty of room to increase prices. The average retail price of gasoline at this time, exclusive of taxes, is about eight cents a gallon less than it was in 1926, the year the government is using as a basis in its present program.

Crude Oil Production in the United States

Estimated daily average production for the week ending July 29, and a comparison with the previous week and a year ago, follows:

	July 29	July 22	July 30, 1932
Oklahoma—			
Oklahoma City	245,615	281,986	73,910
Seminole-St. Louis	138,380	128,320	111,720
Remainder of State	217,145	211,415	208,185
Total Oklahoma	601,140	621,721	393,815
East Texas—			
Lathrop	263,405	248,575	125,594
Kilgore	193,660	182,690	100,022
Joiner	177,875	167,715	105,010
Total East Texas	634,940	598,980	330,626
West Texas	158,197	158,035	178,305
North Central Texas	72,611	72,461	74,196
Texas Panhandle	55,602	50,310	56,851
East Central Texas	58,395	57,998	57,946
Gulf Coast—Texas	207,838	204,793	115,432
Southwest Texas	54,593	54,215	61,687
Total State of Texas	1,242,176	1,196,792	875,043
Kansas	125,620	128,680	95,855
North Louisiana	26,040	26,320	29,915
Gulf Coast—Louisiana	46,460	44,465	31,648
Arkansas	32,320	31,350	34,140
Eastern Fields	110,000	110,000	117,000
Rocky Mountain area	76,360	74,100	84,250
California—			
Santa Fe Springs	53,750	53,750	57,750
Long Beach	74,250	73,750	68,250
Playa Del Rey	11,250	11,250	14,500
Elwood	14,500	14,000	14,000
Kettleman Hills	61,750	62,750	61,500
Remainder of State	270,750	275,500	254,000
Total California	486,250	491,000	470,000
Total United States	2,746,366	2,724,428	2,131,666

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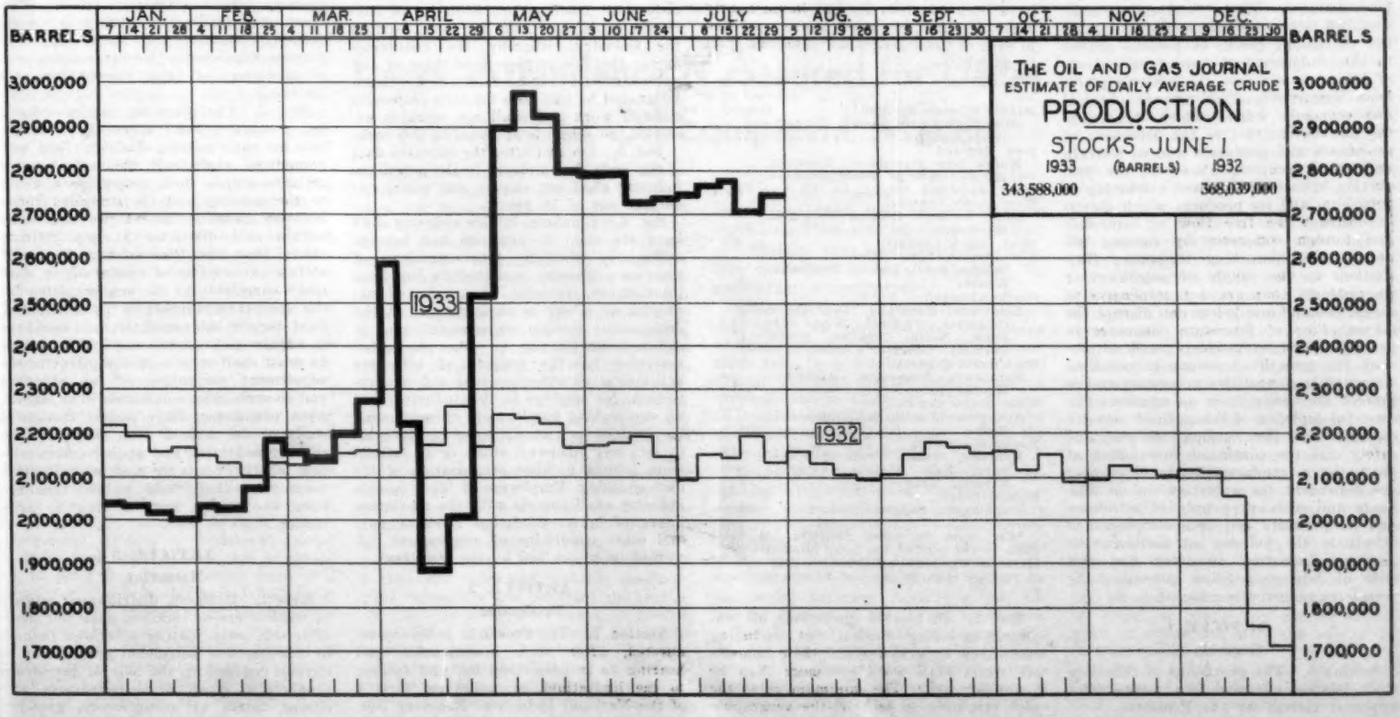


Federal Allocation of Production Stipulated in Government's Code for Petroleum Industry

By CHARLES E. KERN
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., July 31.—A tentative code of fair competition for the petroleum industry was laid before an assemblage of 1,000 oil men at the U. S. Chamber of Commerce tonight by Gen. Hugh S. Johnson, administrator of the National Recovery Act.

The oil industry having been unable to agree upon a code, General Johnson declared his purpose to provide one for them. Tonight he told them he had left out of the proposed code the lease and agency provisions because the Federal Trade Commission had that matter under consideration to determine whether such practices violated the principles of fair competition and their report would be made in about one month.

General Johnson suggested that each group of oil men here should at once appoint a committee of five and that these committees should go over his tentative code and see if they can agree to its provisions. He asked them to meet him at the same place tomorrow (Tuesday) night and make a report of what they have accomplished and see if they could get a complete agreement. He wished to hear from them on the questions of one code for the entire industry or one for marketing and another for the other activities.

The code as presented by General Johnson contains material changes from the code formerly discussed and is really a new code to be considered.

The code in complete text follows:

PREAMBLE

To meet the emergency in the petroleum industry; to increase employment, establish fair and adequate wages, enlarge the purchasing power of persons related to this industry and improve standards of labor; to conserve the nation's petroleum resources and to prevent physical and economic wastes which demoralize the national market to the detriment of consumers and producers and to restrain and avoid recurring abuses in the production, transportation and marketing of petroleum and its products which directly obstruct the free flow of interstate and foreign commerce by causing abnormal and disturbing temporary fluctuations in the supply of petroleum or its products that are not responsive to actual demand and prices and disrupt the normal flow of interstate commerce in petroleum and its products; and to prevent the growth of monopoly resulting from unfair competitive practices; and to protect the nation from an unnecessarily wasteful depletion of this natural resource essential for the national defense and safety and the continued functioning of the nation's transportation facilities that are dependent for operation on an adequate and economic supply of petroleum and its products and to accomplish and effectuate the policies set forth in the National Industrial Recovery Act, this code of fair competition governing the petroleum industry is adopted.

ARTICLE 1
General

Section 1. The provisions of this code shall become effective two weeks after approval thereof by the President.

Sec. 2. The term American petroleum industry includes the production, transportation, refining, and marketing of crude petroleum and its products; and is inclusive likewise of natural gasoline and such natural gas as is produced in conjunction with petroleum. The term "person" shall include persons, partnerships, associations, trusts, including trustees in bankruptcy and receivers, and corporations. The word "President" shall mean either the President or any agent, employe, or agency empowered by the President to act in his stead.

Sec. 3. Such of the provisions of this code as are not required to be included therein by the National Recovery Act, may, with the approval of the President, be modified or eliminated as changes in circumstances and experience may indicate.

Sec. 4. This code is hereby declared subject to the right of the President from time to time to cancel or modify any order, approval, license, rule or regulation issued under Title 1 of the National Industrial Recovery Act.

ARTICLE 2
Labor

Section 1. In drilling, production, refinery and pipe line operations, the maximum hours for clerical employes shall not exceed 40 per week. All other employes in these operations, except executives, supervisors and their immediate staffs and pumpers on "stripper" wells located so as to make relief impracticable, shall work an average of not more than 36 hours per week with the right to work a maximum of 40 hours per week for any six weeks within any 26 weeks' period, but not more than eight hours in any one day. To establish geographic divisions for the petroleum industry, the geographic divisions as shown by the U. S. Department of Labor, Bureau of Labor statistics wage reports (October, 1929) have been adopted. The minimum hourly rates for the employes above specified in each of these geographic divisions shall be as follows:

	Minimum rate per hour (cents)
Middle Atlantic division: New York, New Jersey, Pennsylvania	52
New England: Maine, New Hampshire, Vermont, Rhode Island, Massachusetts, Connecticut	52
East North Central: Ohio, Indiana, Illinois, Michigan, Wisconsin	52
West North Central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas	50
South Atlantic: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida	*45
East South Central: Kentucky, Tennessee, Alabama, Mississippi	*45
West South Central: Arkansas, Louisiana, Oklahoma, Texas	*50
Rocky Mountain: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Nevada, Utah	50
Pacific Coast: Washington, Oregon, California	55

*For work in these districts not more than 10 per cent of the total number of employes in any plant or operation may be paid at not less than 80 per cent of this minimum rate.

Sec. 2. In market operations all employes including clerical but excluding executives, supervisors and their immediate staffs shall work not more than 40 hours per week. The minimum rates for such employes in each of the geographic divisions above specified shall be as follows:

	Minimum rate per hour (cents)
Middle Atlantic division: New York, New Jersey, Pennsylvania	47
New England: Maine, New Hampshire, Vermont, Rhode Island, Massachusetts, Connecticut	47
East North Central: Ohio, Indiana, Illinois, Michigan, Wisconsin	47
West North Central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas	42
South Atlantic: Delaware, Maryland, District of Columbia, West Virginia, North Carolina, South Carolina, Georgia, Florida	*40
East South Central: Kentucky, Tennessee, Alabama, Mississippi	*40
West South Central: Arkansas, Louisiana, Oklahoma, Texas	*40
Rocky Mountain: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Nevada, Utah	45
Pacific Coast: Washington, Oregon, California	47

*For work in these districts not more than 10 per cent of the total number of employes in any plant or operation may be paid at not less than 80 per cent of this rate.

Sec. 3. It is the purpose of this code that all employes engaged in similar work in each of the geographical divisions shall be placed on the same basis of hours and receive at least the minimum earnings provided for each class of work in the industry.

To effectuate this purpose, the differentials between the rates for skilled jobs and the minimums established in this code for common labor will not be less than those existing in the industry in each geographical area on July 1, 1929; but in no case will such differential for refinery stillman be less than 45 cents per hour or for rotary driller less than 75 cents per hour.

Sec. 4. Every person subject to this code shall insert a provision in all contracts made by them for work within the industry, whereby the contractor agrees that his employes, or those of any subcontractor, shall receive the rates designated by this code for each respective class of work and shall not work in excess of the schedule of hours in this code.

Sec. 5. On and after the effective date of this code the employer in the petroleum industry shall not employ any minor under the age of 16 years.

Sec. 6. Employes in this industry shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization, or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection. No employe in this industry, and no one seeking employment therein, shall be required as a condition of employment to join any company union or to refrain from joining a labor organization of his own choosing. Employers of labor in this industry shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment approved or prescribed by the President.

ARTICLE 3
Production

Section 1. The President is hereby requested, after such investigation and hearing as is prescribed by, and subject to the limitations contained in, Title 1 of the National Industrial Recovery Act, to limit imports of crude petroleum and petroleum products to volumes bearing such ratio to the estimated volume of domestic production as will effectuate the purposes of this code and the National Industrial Recovery Act.

Sec. 2. Required production shall be estimated at intervals by a Federal agency designated by the President. In estimating such required production, due account shall be taken of probable withdrawals from stocks in storage and of anticipated imports. The required production shall be equitably allocated among the several states by the Federal agency. The estimates of required production and the allocations among the states shall be submitted to the President for approval, and, if approved by him, shall become operating schedules for the industry.

Sec. 3. The subdivision into pool and lease quotas of the production allocated to each state is to be made within the state. Should pool or lease quotas allocated in conformity with the provisions of this section not be made within the states or if the production of petroleum within any state exceeds the quota allocated to said state, the President may regulate the shipment of petroleum or petroleum products out of said state to the extent necessary to effectuate the purposes of the National Industrial Recovery Act, and/or he may compile such pool and lease quotas, in which event it is hereby agreed that such quotas shall become operating schedules for such state.

ARTICLE 4
Refining

Section 1. To achieve greater accuracy in balancing production and consumption, to prevent the injurious effect upon interstate commerce of an unbalanced accumulation of gasoline inventories in any part of the country, and to facilitate equitable access of refiners to the allowable supply of crude oil, the Federal agency designated by the President shall divide the country into eight refining districts and shall suggest a proper relationship between inventories of gasoline and sales thereof for each district.

Sec. 2. The planning and co-ordinating committee shall appoint subcommittees for each refining district. Said subcommittee shall call the attention of refiners within their respective districts to the existing and recommended ratios between gasoline inventories and sales within said districts. If any refinery claims that inequities exist in the availability of supplies of crude oil, it shall make complaint to the subcommittee for the district within which it is situated. Said district subcommittee shall endeavor to adjust such controversy; if it cannot do so, it shall refer such complaint to the adjustment committee of the planning and co-ordination committee. The adjustment committee, after proper statistical study of the ratio beween claimant's inventory and sales, and upon recommendation of the planning and co-ordination committee, shall hold public hearings, upon due notice, with a view to arbitration.

ARTICLE 5
Marketing

Rule 1. Refiners, distributors, jobbers or wholesalers or retailers shall not hereafter sell, lease, loan or otherwise furnish to consumers of petroleum products or to anyone engaged in the sale of petroleum products at retail, or to consumers, any pumps, tanks, air compressors, greasing

equipment or guns, lubsters, or other equipment or accessories (excepting only pump globes and the usual advertising signs) for the storage, display, vending, delivering or consumption of petroleum products, except as otherwise provided in Paragraph 3 of this rule. Notwithstanding the prohibition hereinabove contained, any co-operative society, association, or corporation of the type described in Rule 29 of this article shall be permitted to purchase for co-operative distribution to any member or members thereof, equipment of the kind hereinabove described, intended for exclusive use by such member or members.

If equipment of the kind, type or description hereinbefore mentioned now in operation becomes damaged, destroyed or worn out, it will not be replaced by any refiner, distributor, jobber or wholesaler.

The equipment of the kind, type or description hereinbefore mentioned, furnished, loaned or leased before June 15, 1933, by any refiner, distributor, jobber or wholesaler to or installed with any retailer or consumer shall, at the expiration of any contractual relation, and on the request of such retailer or consumer, be sold by such refiner, distributor, jobber or wholesaler to such retailer or consumer, or, in the absence of a sale to such retailer or consumer as herein provided, shall be sold by the refiner, distributor, jobber or wholesaler, who has made the loan, to any other refiner, distributor, jobber or wholesaler who is about to begin supplying petroleum products to such retailer or consumer, on the request of such other refiner, distributor, jobber or wholesaler, at the original invoice price, plus actual cost of installation, less a depreciation of 15 per cent per annum, but in no event at a price lower than that fixed in the schedule hereto attached marked Appendix "A." In the event of a purchase as herein provided by such other refiner, distributor, jobber or wholesaler, such equipment may be loaned, leased or licensed to the retailer or consumer at such location by any new supplier subsequently acquiring title thereto.

Exception to Rule

This rule does not apply to the sale of equipment by the manufacturer thereof where such sale is not conditioned upon the purchase or use of petroleum products.

Rule 2. Refiners, distributors, jobbers, wholesalers or retailers shall not construct, repair, lease, loan or furnish driveways, buildings, canopies, air compressors, grease lifts or pits, grease equipment, grease guns, air towers, light poles, flood lights, material for driveways, buildings or canopies, or any other equipment of any character whatsoever in connection with service stations or the storage, display or sale or consumption of petroleum products (excepting only pump globes and the usual advertising signs and except as provided in Rule 1 of this article) for or to anyone engaged in the sale or delivery of petroleum products to consumers or for or to consumers.

Nothing contained in Rules 1 and 2 of this code shall prohibit refiners, distributors, jobbers or wholesalers or retailers from installing at or furnishing or equipping with any of the devices mentioned in Rules 1 and 2 any station or place where petroleum products are sold to consumers, which station or place is owned in fee by such refiner, distributor, jobber or wholesaler, or held by such refiner, distributor, jobber, or wholesaler under a valid and binding lease, and at the time the lease was executed the leased premises were not improved with any building or other facility or equipment for the sale or storage of petroleum products, or held by such refiner, distributor, jobber, or whloesaler under a valid and binding lease for a period of at least five years, which lease provides for a substantial rental not determined by the volume of petroleum products sold at the premises and which does not contain any provision permitting either party thereto to cancel or terminate it or the term thereby granted before the expiration of five years from the beginning of such term.

Nothing contained in Rule 2 shall prohibit any individual from setting up a station or place for the sale and distribution of petroleum products and from furnishing his own equipment at his own expense.

Rule 3. Refiners, distributors, jobbers or wholesalers shall not make any repairs to any equipment of any kind owned by retailers or consumers; and shall not make any repairs to any equipment now loaned or leased to or installed with retailers or consumers which necessitates the removal from the premises of the equipment in order to effect the repairs.

Refiners, distributors, jobbers, or wholesalers may make any ordinary repairs to any equipment now loaned or leased or otherwise furnished to retailers or consumers, provided such repairs can be made without the removal of such equipment from the premises.

Filling Station Painting

Rule 4. Refiners, distributors, jobbers, or wholesalers shall not do any painting, nor furnish any paint free, or sell any paint for or to consumers or for or to retailers, except pumps through which the products of the refiner, distributor, jobber, or wholesaler are sold and except usual advertising signs. Any new supplier shall assume the obligation of painting out colors identifying previous suppliers of the retailers or of anyone selling petroleum products to consumers or consumers with some neutralizing color other than that customarily used to identify places through which the products of the refiner, distributor, jobber or wholesaler doing the painting are sold or dispensed. Before any refiner, distributor, jobber or wholesaler paints over any sign or color of another refiner, distributor, jobber, or wholesaler, it shall communicate with the refiner, distributor, jobber, or wholesaler whose signs or colors are involved inquiring whether such refiner, distributor, jobber or wholesaler has any written contract which would be violated by the proposed painting. Any refiner, distributor, jobber, or wholesaler to whom such inquiry is presented shall respond thereto within 10 days from date of notice giving the information requested and if the proposed painting would violate any contract which it holds shall offer to submit the contract for inspection at its office. If the proposed painting would violate the contract so submitted, the painting shall not be done.

Refiners, distributors, jobbers, or wholesalers may sell paint direct to any other refiner, distributor, jobber or wholesaler. Nothing hereinabove contained shall prevent any co-operative society, association, or corporation of the type defined in Rule 29 of this article, from buying paints for co-operative distribution to any member or members thereof, provided that the purchase or sale of such paints shall not be conditioned upon the purchase or sale of petroleum products.

Breaking Contracts

Rule 5. No refiner, distributor, jobber, or wholesaler or other person engaged in the sale of petroleum shall knowingly induce, attempt to induce, or assist a party to break a then existing written contract for the sale of petroleum or a then existing lease of the premises used for the sale of petroleum products between that party and another.

No refiner, distributor, jobber, wholesaler, retailer, or other person engaged in the sale of petroleum products shall sell or deliver any naphtha, gasoline, motor fuel, lubricating oil, grease, kerosene, or heating oil to anyone knowing that such sale or delivery will violate or prevent the performance of a then existing written contract between the person to whom the sale or delivery is made and another.

No contracts in violation of this code are protected under this rule.

Rule 6. When any pump, tank, or other device for the storage, display, consumption, handling or sale of naphtha, gasoline, motor fuel or lubricating oil, bears the name, trade-mark, or trade name of any person, firm, association, or corporation engaged in the manufacture or sale of any such commodity, no other person, firm, association, or corporation shall deliver into or deliver for sale from such pump, tank, or other device, or any tank or other container connected therewith, any naphtha, gasoline, motor fuel, or lubricating oil, other than that manufactured, sold, or distributed by the person, firm, association or corporation whose name, trade-mark or trade name is so affixed, and no person, firm, association or corporation shall in any way knowingly be a party to the substitution of one grade or brand of naphtha, gasoline, motor fuel, or lubricating oil, for another.

Rule 7. Lotteries, prizes, wheels of fortune, or other games of chance shall not be used in connection with the sale of petroleum products.

Rule 8. Refiners, distributors, jobbers, wholesalers, retailers and others engaged in the sale of petroleum products shall not sell any such refined petroleud products below cost of manufacturing or importation into the state where offered for sale, plus reasonable expenses in the cost of marketing as observed under prudent management, fixed taxes and inspection fees by the Federal or state government, or in any political subdivision thereof, provided, however, that any person engaged in the sale of petroleum products may be allowed to meet competition, if such competition is not instigated directly or indirectly by the party desiring to meet such competition, and provided, further, that in the event that any person engaged in the sale of petroleum products contends that he is injured competitively by reason of a violation of this rule, he shall be exempt from the terms thereof for such reasonable, limited period as may be required for him to make complaint thereof to the proper authority and for such authority to take action thereon.

An authority, committee or commission delegated by the National Recovery Administration for such purposes shall receive complaints of violation of this rule and make such investigations and/or hold such hearings as it deems necessary to determine whether the prices complained of are in violation of this rule.

Loans and Credit

Rule 9. Refiners, distributors, jobbers, or wholesalers shall not loan money to retailers or others engaged in the sale of petroleum products, or to consumers, for any purpose whatsoever and shall not extend any credit to any retailer or to anyone engaged in selling petroleum products to consumers except for merchandise sold for resale. Refiners, distributors, jobbers, or wholesalers shall not pay for or reimburse to any retailer or consumer, either directly or indirectly, any property tax, privilege tax, license fee or tax, inspection fee or tax, chain store tax, or any other charge, tax or impost levied or assessed by any taxing authority upon any retailer or consumer in connection with the operation of any place or facility for the sale of petroleum products, nor advance money for the same.

Rule 10. Except in such cases as constitute exceptions to the prohibitions contained in Rules 1 and 2 of this article, refiners, distributors, jobbers, or wholesalers shall not lend, lease, or otherwise furnish any equipment of any character whatsoever, except trade-marked pump globes and other usual advertising devices, to anyone purchasing or receiving petroleum products by tank car, tank barge, truck train or pipe line or to anyone selling petroleum products for resale, or consumption.

Rule 11. Refiners, distributors, jobbers, or wholesalers shall not pay rentals or otherwise pay for the privilege of displaying advertising on premises where naphtha, gasoline, motor fuel, lubricating oil, grease, kerosene, or heating oil are sold.

Rule 12. Refiners, distributors, jobbers, or wholesalers may own service or filling stations or sites for same and may fully equip such stations or sites and may lease, operate, or license such stations or grant a license to anyone to operate such stations for the distribution of petroleum products manufactured or sold by such refiner, distributor, jobber, or wholesaler, or such refiner, distributor, jobber, or wholesaler may employ anyone as agent of such refiner, distributor, jobber, or wholesaler for the sale of petroleum products thereat.

Rule 13. Gasoline shall not be sold or delivered from tank wagons or trucks to motor vehicles except in emergency cases.

Rule 14. Refiners, distributors, jobbers, wholesalers, retailers, and others engaged in the sale of petroleum products shall not give away oil, premiums, trading stamps, free goods, or other things of value, or grant any special inducement in connection with the sale of petroleum products.

Rule 15. All refiners, distributors, jobbers, and wholesalers shall conspicuously post at each point from which they make deliveries, and at places there read-

Large Attendance Is Assured for Dallas Meeting of Oil Equipment Makers

Approximately 300 jobbers and manufacturers of oil field equipment and supplies are expected to be represented at the meeting to be held in the Baker Hotel, Dallas, August 3 and 4 for the purpose of organizing the American Petroleum Equipment Suppliers Association to function under the Federal Industrial Recovery Act. The committee in charge of arrangements for the meeting consisting of S. P. Farish, Reed Roller Bit Co., chairman; S. P. Brown, Hughes Tool Co., and Frank S. Carothers, Norvell-Wilder Supply Co., have received acceptances to invitations to attend the meeting from all sections of the United States.

In connection with the meeting, the committee has sent the following announcement to manufacturers and distributors of oil supplies, material and machinery throughout the country:

"Our committee has had requests for a code and other organization products. This committee has assumed no authority for a code or other form of government. That is the purpose of the Dallas meeting.

"Every one should think much and earnestly about the practical ways of governing ourselves, as individuals and as an industry, under the recovery act.

"Write your ideas out clearly, so that they may be considered by the several committees which will handle the work at Dallas. Then also be ready to defend and explain them consistently either before committees or on the floor of the convention, if need require.

"Our 'new deal' ought to be a 'square deal' when all interests have the means of being properly considered. Where now there seem to be conflicting interests and diverse methods, let us first assume a give-and-take attitude as the first step in conciliation. Then our good will and good sportsmanship will help to make the work at Dallas practical."

Texas manufacturers, desiring to co-operate with the Federal Government in efforts to speed business recovery are placed at a disadvantage because of the antitrust laws of Texas. These laws should be revised to permit group activity such as is contemplated under the Industrial Recovery Act. It is felt the special session of the Texas legislature, called to meet the last of August, will realize this fact and revise the antitrust laws of the state to permit business firms and citizens in Texas to be members of associations formed to function under the Industrial Recovery Act.

ily accessible during business hours to the public, all prices for which naphtha, gasoline, motor fuel, lubricating oil, grease, kerosene, and heating oils are sold.

With the exception of sales made directly by refiners, all such prices shall remain in effect for at least 24 hours after they become effective. Refiners must post for 24 hours the prices for all sales made the previous day. The posting shall include the following: The prices for all classes, types, methods and quantities of deliveries, except those under previously executed contracts, being made from the place where the price is posted, a schedule of all discounts offered and the terms thereof and a statement of all terms as to freight rates and deliveries, if different prices are offered to different classes of buyers, such prices shall be separately posted. The posted prices shall include, among others, the prices for spot sales. When prices are posted for deliveries in tank wagons or tank trucks, the posting shall describe the area to which the prices apply. All sales shall be made at the posted prices applicable thereto and no departure shall be made from the prices, schedule, or discounts or from the terms posted applicable to any such sale.

Posting of Prices

All retailers, and others who sell to consumers, shall conspicuously post at the place from which delivery is made, and at places there readily accessible during business hours to the public, one price at which each brand, grade, or quality of naphtha, gasoline, motor fuel, lubricating oil, grease, kerosene, and heating oil are sold. All retailers, and others who sell to consumers, unless prevented therefrom by applicable law, shall separately post in the same manner all tax they are required to pay or collect because of the sale of naphtha, gasoline, motor fuel, lubricating oil, grease, kerosene, or heating oil. All prices posted shall remain in effect for at least 24 hours after they are posted.

All sales shall be made at the posted prices applicable to the brand, grade, or quality of the commodity sold.

Coupon books or other scrip of any nature, if used, shall be sold and redeemed at their face value without any discount.

No one shall make any deviation from his posted price by means of rebates, allowances, concessions, benefits, scrip books, quantity discounts, discounts to buyers of a class or by any plan, device, or scheme whereby any buyer obtains any naphtha, gasoline, motor fuel, lubricating oil, grease, kerosene, or heating oil at a net cost lower than the applicable posted price.

The provision that all previously executed then existing contracts regarding price will be available for inspection upon the direct request of any competitor, unless such request shall be made for the purpose of unfairly obtaining information in which event the decision whether such contract shall be disclosed shall be made by the authority, committee or commission provided in Rule 8 of this article, or such agency as it may designate.

On a change in the posted price no adjustments, allowances, credits, or refunds shall be given to any buyer on deliveries already made.

Abnormal deliveries in anticipation of price advance and acceptances of orders for subsequent deliveries at prices effective before advances, are prohibited.

Rule 16. No one shall make any delivery of naphtha, gasoline, motor fuel, kerosene, range oil, lubricating oil or heating oil at any refinery, terminal or bulk plant to a reseller, into any wagon, truck, tank wagon or tank truck owned or operated by or for such reseller. The term "reseller," as herein used, shall not be construed to include any agent selling such commodities on a commission basis. Deliveries may be made in exchange for similar commodities received or to be received by the person making the deliveries from the person to whom the delivery is made. Nothing in this rule contained shall apply to deliveries made to bona fide jobbers either in their own vehicles, or for their account, from refineries, terminals, or bulk plants.

Rule 17. The provisions of this code relating to transactions of refiners, distributors, jobbers, or wholesalers with retailers and others selling or consigning petroleum products to consumers shall apply to all accounts, of any description, under which refiners, distributors, jobbers, or wholesalers sell their products or cause their products to be sold to consumers or to retailers, or to others selling petroleum products to consumers.

Rule 18. Refiners, distributors, jobbers, wholesalers, and retailers shall permit any duly authorized employe, agent, or representative of the commission delegated by and representative of the National Recovery Administration to make any inspection or examination of books, records, contracts, plants, or stocks of merchandise to determine if there has been any failure to comply with the provisions of this code or any failure of the refiner, distributor, wholesaler, or retailer or by any other person, firm or corporation to pay any tax required to be paid because of the receipt, sale, or use of any naphtha, gasoline, motor fuel, lubricating oil, greases, kerosene, range oil, heating oil, or any other petroleum products.

Rule 19. The schedule of credit attached hereto marked Appendix "B" is hereby adopted by the petroleum industry as a uniform basis of credit to be applicable to all deliveries made after the effective date of this code. The granting of a longer term of credit or a larger rate of discount by any refiner, distributor, jobber, wholesaler, or retailer than that allowed by this schedule shall constitute an unfair method of competition.

Credit conditions of contracts made prior to the effective date of this code are excepted from the provisions of this rule.

No Burner Service

Rule 20. The broadcasting or publishing, in any manner, of a claim, representation, or implication which leads to a false or incorrect conclusion in regard to the goods, prices, or service of the advertiser, or in regard to the goods, prices, or service of a competitor, or which lays false claim to a policy of continuing practice of generally underselling competitors, is an unfair and uneconomic practice and is prohibited.

Rule 21. Refiners, distributors, jobbers, wholesalers, or retailers shall not render any burner service in connection with the sale of heating oils and fuel oils, nor shall any refiner, distributor, jobber, wholesaler or retailer grant a commission of any kind to any person other than a regular employe of such refiner, distributor, jobber, wholesaler or retailer in connection with such sales. This rule is not to be construed to prohibit advisory service.

Refiners, distributors, jobbers, wholesalers or retailers shall not sell to consumers of heating oils and fuel oils for delivery by tank wagon or tank truck on a contractual basis for a period exceeding 12 months.

No refiners, distributors, jobbers, wholesalers or retailers shall knowingly sell any heating oil or fuel oil to consumers in tank car lots unless said consumers have facilities for receiving and storing tank car lots upon the premises on which the heating oil or fuel oil is to be consumed.

Rule 22. In all sales of trade-marked or branded petroleum products for resale, refiners, distributors, jobbers or wholesalers may, by contract, require purchasers to sell at prices therein designated for such resale; and may further require that if such products are thereafter sold by such purchaser for resale that the original purchaser shall incorporate a similar provision in the contract with its purchaser for resale.

Any purchaser who agrees to sell any refined petroleum products at the prices designated therefor by the refiner, distributor, jobber or wholesaler, from whom purchased, shall make all sales thereof at prices not less than those so designated.

Rule 23. This code shall not apply to contracts actually made prior to June 15, 1933, until September 1, 1933, whereupon it shall apply to all such contracts as soon as any cancellation or termination thereof can be legally accomplished.

This code shall apply to all contracts made after June 15, 1933, and shall apply to all renewals of extension made after June 15, 1933, of contracts made prior to June 15, 1933.

The provisions of this code shall not apply to transactions between subsidiary or affiliated companies. Companies shall be considered to be affiliated when one owns the majority of the outstanding capital stock of the other, and when the majority of the outstanding capital stock of each is held by the same individual, corporation or association, or, in the case of co-operative associations as defined in Rule 29 of Article 5 of this code, when the local associations collectively owns the majority of the outstanding stock of the Central Co-operative Association. The parent companies owning the majority of stock in other companies shall be responsible for the observance of such subsidiary or affiliated company of the provisions of the rules of this code.

The provisions of this code shall not apply in respect to sales made in the United States for export to foreign countries.

Trade Marks and Slogans

Rule 24. The unauthorized use by any person, firm or corporation of the trademark, trade slogan, insignia, or emblem of any trade association in the petroleum industry, or the assertion or claim, by advertisement or otherwise, by any person, firm, or corporation that he or it is a member of any such association when in fact not a member thereof, shall be an unfair trade practice.

Rule 25. In as much as there are firms and corporations in the petroleum industry who severally or through firms and corporations owned or controlled, constitute and comprise a complete or integrated unit in such industry or produce and refine petroleum and market the products manufactured therefrom, the busines thereof shall be so conducted that the several branches of this industry, viz.: producing of petroleum, refining, and marketing of refined products may be carried on upon a profitable basis and that no one or more of the said branches shall obtain or receive excessive or disproportionate gain or profit therefrom to the exclusion of any other branch of this industry.

Rule 26. Evasion of taxes in the sale of petroleum products gives to evaders an undue and unlawful advantage over legitimate marketers and is unfair competition within the meaning of the National Industrial Recovery Act.

Rule 27. Wherever any merchant or vendor of any and all types of merchandise offers for sale at wholesale or retail motor fuels, motor lubricants, motor gasoline or naphthas of a petroleum nature he shall, in so far as his business pertains to these products, be bound by the regulations of this code.

Rule 28. The provisions of this code shall not prevent an association, society or corporation organized or incorporated on the co-operative plan under any law of any state, territory or District of Columbia or of the United States as defined in Rule 29 of Article 5 of this code from paying patronage dividends to the members or stockholders of such an organization in accordance with the provisions of the law, the articles of association, articles of incorporation and/or by-laws of such association, society or corporation, and the payment of such patronage dividends by such co-operative organizations shall not be construed as a violation of this code, nor shall the payment or distribution of such dividends be construed under this code as an unfair method of competition; it being specifically understood that such dividends shall not be paid to nonmembers or nonstockholders.

Rule 29. All farm co-operative societies, associations and/or corporations, organized under the laws of any state, territory or District of Columbia or of the United States, membership in which is restricted to persons whose chief source of livelihood is farming and which distribute their patronage dividends to such members only, shall be exempted from certain provisions of this Article 5 as hereinbefore specified; provided, however, they shall be otherwise fully subject to the provisions of Article 5.

Rule 30. A violation of any of the rules of this code shall constitute an unfair method of competition.

In the event any rule of this code should be disapproved or held invalid, such action shall in no way affect any other rule hereof.

ARTICLE 6

Organization

Section 1. The administrative machinery for the effectuation of this code shall consist of:

(a) The planning and co-ordinating committee, representing the petroleum industry and the National Recovery Administration.

(b) A Federal agency to be designated by the President.

Sec. 2. The planning and co-ordinating committee shall consist of nine members, three of whom shall be representatives of the National Recovery Administration and appointed by the President and six of whom shall be representatives of the petroleum industry, and, for purposes of immediate organization, appointed by the President from nominations made by a group or groups within the industry.

Sec. 3. The planning and co-ordinating committee is set up to co-operate with the administrator as a planning and fair practice agency for the petroleum industry. Such agency may from time to time present to the administrator recommendations which will tend to effectuate the operation of the provisions of this code and the policy of the National Industrial Recovery Act and is charged in particular with endeavoring to promote the fullest possible co-operation with state regulatory bodies.

Sec. 4. The planning and co-ordinating committee shall have a chairman from its own membership and the following working technical subcommittees:

(a) Statistical committee.
(b) Development committee.
(c) Refining committee.
(d) Marketing committee.
(e) Accounting committee.
(f) Labor committee.
(g) Adjustment committee.

Sec. 5. The Federal agency designated by the President shall make such estimates of petroleum requirements and such recommendations for quotas, allocations and inventories as may be required for the effectuation of this code and shall consider and make recommendations with regard to such plans for development as shall require the President's approval under this code.

Sec. 6. In order to provide necessary data upon which to base its studies for the purposes of this code, the Federal agency designated by the President and the planning and co-ordinating committee are empowered to call upon the industry for the necessary statistical and other reports and any refusal to supply such reports is a violation of this code.

APPENDICES

Appendix A

Schedule of equipment prices to be used as a basis of purchase or sale between oil companies.

	Not lower than
Blind gasoline pumps:	
All makes of blind pumps, including duplex and all sizes 1 to 5 gallons capacity	$20.00
Visible pumps:	
5-gallon dry or wet hose visible, 10 or 15-gallon dry hose visible, dual bowl visible, all types, 5-gallon blind pumps with 5 or 10-gallon visible attachment, remote control visible, air lift visible—all of the above	20.00
10 and 15-gallon visible wet hose, all makes	40.00
10 or 15-gallon visible wet hose, electric power operated	50.00

Electric meter pumps:	
Electric flow meter pumps, with or without air separator	45.00
Electric displacement meter pumps, without air separator	70.00
Electric displacement meter pumps, with air separator	85.00

On any of the above pumps furnished in twin type the price shall be double that of the single unit.

Gasoline buggies or wheel tanks:	
Any capacity, identified by underwriters' label	$50.00
Same as above, not identified by underwriters	25.00
Skid tanks with pumps:	
Skid tanks used for gasoline, kerosene, or distillate, up to 550 gallons capacity, equipped with any type	25.00
Combination gasoline or kerosene underground tanks with pumps:	
100 to 200 gallons capacity, with 1 ga. or rotary pump	25.00

Miscellaneous Pump Equipment

Hydraulic systems, drop cylinder jobs, remote control systems, and any other special type of equipment including airport equipment and equipment used to serve marine trade, etc., shall be considered special equipment, purchase or sales price shall be arrived at by joint appraisal on the premises.

Underground Tanks

Underground tanks shall be bought or sold at prices shown below, which include all installation costs, labor, materials, freight, etc., up to and including the installation of the pump itself (value of pump not included) on the following basis:

	Not lower than
280-gallon tank	$35.00
550-gallon tank	50.00
1,000-gallon tank	75.00
2,000-gallon tank	100.00

These prices are for tanks of any specification, galvanized or black steel as now installed.

Capacities of tanks shown above are normal sizes and may vary 10 per cent more or less.

For each additional pump installed on one tank add $10 for installation cost.

Where the original installation of the tank and piping involved the removal and replacing of concrete, an allowance of 25 cents per square foot with a maximum allowance of 60 square feet for each tank and 60 square feet for pipe trench shall be added to price of the respective size tank.

Where tanks are installed under unusual conditions due to ordinances or regulator restriction which resulted in excessive costs the purchase or sale will be based on the actual cost of such installation less 10 per cent per annum depreciation on equipment and material used plus actual labor cost.

Odd size tanks not covered by the above classification shall be bought and sold at a price interpolated between those specified.

Underground tanks and any part of the underground installation in connection therewith, may be repaired or replaced by the owner thereof. If replaced the new tank shall be of the same capacity as original and the original removed from the premises or made unfit for use.

Automobile Lifts, Racks and Pits

Automobile lifts of plunger type will be bought or sold at the invoice price date of seller's purchase, plus freight, less 15 per cent per annum depreciation from date of invoice, plus a flat installation charge of $40, plus an allowance for concrete, if any, installed by owner of lift, up to a maximum of 400 square feet, based on 20 cents per square foot.

Portable steel automobile lifts, grease and wash racks will be bought or sold on invoice price date of seller's purchase, plus freight less 25 per cent for depreciation and obsolescence per annum from date of invoice. No allowance for installation cost.

Pits and nonportable racks will be bought or sold on a basis of joint appraisal on the premises at time of exchange.

Compressors

All air compressors will be bought or sold on a basis of invoice price date of seller's purchase, plus freight, less 25 per cent per annum depreciation and obsolescence from date of invoice. No installation cost considered.

Kerosene Equipment

Kerosene equipment shall be bought or sold at the following prices for the respective sizes and classes:

60 to 65-gal. square kerosene tank equipped with pump	$12.00
110 to 112-gal. square kerosene tank equipped with pump	15.00
150 to 165-gal. square kerosene tank equipped with pump	25.00
200 to 220-gal. square kerosene tank equipped with pump	30.00
Round portable kerosene tanks equipped with pump:	
60 to 120-gal. capacity	6.00
Rectangular tanks equipped with pump:	
60 to 65-gal. capacity	12.00
Cellar kerosene outfits equipped with standpipe and pump:	
60 to 120 gal. cap. installed, ea.	40.00
250 to 270-gal. cap. installed, ea.	70.00
50 to 100-gal. miscellaneous faucet tanks and in dump tanks	2.00
Lubricating oil equipment:	
50-gal. round lub. oil tank	3.00
60-gal. square lub. oil tank	3.00
15-gal. rectangular lub. oil tank	3.00
30-gal. rectangular lub. oil tank	7.00
60-gal. rectangular lub. oil tank	9.00
60-gal. 2 compartment lub. oil tank	10.00
90-gal. 3 compartment lub. oil tank	15.00
Any of the above lubricating oil equipment equipped with meter add $1.50 to the above price.	
1 quart oil bottles, ea.	.10
Tray for 1 quart oil bottles	.25
1 quart barrel pumps	1.00

Miscellaneous lubricating equipment such as air systems, built-in installations, underground installations, miscellaneous portable equipment, etc., not specifically mentioned in the above lubricating oil equipment shall be considered special and the purchase or sale price shall be arrived at by joint appraisal on the premises.

GREASE EQUIPMENT

25-lb. grease bucket or kit without motor	$3.00
Same as above with motor	7.00
100-lb. grease outfit without meter	3.00
Same as above with meter	7.00

No charge for dolly in connection with the 100-pound grease outfit. Miscellaneous grease equipment such as built-in installations, portable equipment, power guns, special portable guns, hand guns, grease gun boards, etc., not specifically mentioned in the above grease equipment shall be considered special and the purchase or sale or price shall be arrived at by joint appraisal on the premises.

Where grease boards furnished by supplier carry trade-mark advertising which cannot be readily effaced by any practical means, supplier shall remove from the premises.

Miscellaneous Equipment

Air and water standards flood lights and lamp posts or any equipment not specifically mentioned herein will be bought or sold on a basis of joint appraisal on the premises at the time of exchange.

Signposts will be considered as property of oil company and shall be removed.

All signs owned by oil company may be bought or sold by joint appraisal.

Arbitration

In case any dispute arises over prices and values of all the respective equipment herein mentioned which do not definitely state a price, the suppliers involved shall choose an arbitrator who shall be a disinterested representative from some other oil company in the immediate vicinity to whom the suppliers shall present their case. The decision of the arbitrator chosen shall be final.

APPENDIX "B" MAXIMUM CREDIT TERMS

Credit Terms

1. Gasoline and kerosene sales: In tank car and barge shipments, 1 per cent 10 days from date of shipment net 30 days, 1 per cent on sight draft payments.

In tank wagon delivery, load-to-load, or net 15th proximo, no cash discount.

Service station deliveries, cash or coupons only.

Coupon books, in denominations of not less than $10, may be sold at face value, without discount, for cash, or on credit payable net 15th proximo. Coupon books issued by any company may be redeemed by any retail outlet where the trademarked products of that company are sold.

Truck train deliveries, from refineries and terminals, or bulk plants to jobbers' bulk plants (3,500 gallons or over), 1 per cent 10 days from date of shipment net 30 days, 1 per cent on sight draft payments.

2. Gas oil and fuel oil sales: In tank car or barge shipments, or deliveries to ships bunkers, 1 per cent 10 days from date of shipment net 30 days, 1 per cent on sight draft payments.

Truck train deliveries, from refineries and terminals or bulk plants to jobbers' bulk plants (3,500 gallons or over), 1 per cent 10 days from date of shipment net 30 days, 1 per cent on sight draft payments.

In tank wagon deliveries: To resellers, load to load or net 15th proximo.

To consumer, net 15th proximo.

3. Lubricating oil and grease sales: In tank car and drum car shipments—Unbranded oils and greases, 1 per cent 10 days from date of shipment net 30 days, or 30, 60 or 90-day trade acceptance.

Branded oils and greases, 1 per cent 10 days from date of shipment net 30 days, or 30, 60 or 90-day trade acceptance.

L.C.L. shipments: All oils and greases, 1 per cent 10 days or net 15th proximo.

Truck and tank wagon deliveries: All oils and greases, 1 per cent 10 days net 15th proximo.

Service station deliveries, cash or coupons only, net 15th proximo.

J. A. Moffett, Resigning as Standard Official, Mentioned as Probable Oil Administrator

WASHINGTON, D. C., Aug. 1.—Appointment of James A. Moffett to membership on the advisory board of nine, under Gen. Hugh S. Johnson, administrator of the National Recovery Act, was announced last night. Mr. Moffett resigned last Friday as senior vice president and member of the board of the Standard Oil Co. (New Jersey). He is prominently mentioned as likely to receive appointment as administrator of the oil industry under the operation of the NRA.

Mr. Moffett is a son of a pioneer of the Standard Oil Co. and himself had been associated with the organization for 28 years. His resignation followed a request from President Roosevelt that he become a member of the advisory board. His action is reported to have been based upon the belief that it would be unwise for him to retain his official relations with the Standard and at the same time serve on the Government's advisory board.

In connection with Mr. Moffett's resignation, Walter C. Teagle, president of the Standard Oil Co. (New Jersey), issued a statement in which he declared it to be the company's intention to do "all in its power to carry out the policies of President Roosevelt, which seek to lift us out of this depression," and assuring Mr. Moffett of co-operation if Mr. Moffett should be appointed to the post of administrator.

Mr. Teagle's Statement

Mr. Teagle's statement follows:

"I would like the public to know that the Standard Oil Co. (New Jersey) is anxious to do all in its power to carry out the policies of President Roosevelt which seek to lift us out of this depression.

"For more than a year now I have been engaged in an attempt to persuade employers that we must do our part in spreading employment. But many of the difficulties encountered heretofore have now been surmounted by the President's plan embodied in the national recovery administration.

JAMES A. MOFFETT

"As chairman of the advisory committee I have had an opportunity to see at first hand the splendid way in which General Johnson is tackling the extraordinary problems of the hour.

"It seems to me that it behooves every company to make whatever sacrifices are necessary to bring about the success of the national recovery plan. This has been and always will be the spirit of the Standard Oil Co. (New Jersey).

"Now with respect to the resignation of James A. Moffett as senior vice president of our company on Friday last: This is a matter of great regret to us all in the Standard Oil Co. (New Jersey), but we realize that in times like these a request to any of our men to serve the Government is equivalent to a command.

"Our regard for Mr. Moffett is evidenced by the fact that, when on June 6 last he wrote me submitting his resignation, my associates and I endeavored to dissuade him from taking such a course.

"Last week, however, when Mr. Moffett was invited to become a member of the industrial advisory board, it seemed to me that the public might misunderstand the presence, on a board of only nine members, of two officials of the same company, and this led to the acceptance of Mr. Moffet's resignation.

Support Assured

"If, as reported to the press today, Mr. Moffett is to become the administrator of the oil industry, on behalf of the Government, he can be assured of the full co-operation and cordial support of the Standard Oil Co. (New Jersey) as well as those of us who have been personally associated with him in the past."

Mr. Moffett has been a supporter of President Roosevelt's policies for industrial recovery and is understood to favor price regulation and Federal supervision of the petroleum industry. In tendering his resignation he was squarely behind the President's recovery program.

Mr. Moffett, who has a broad background in the oil business, was born in

(Continued on Page 29)

Committee Predicts Increase in Gasoline Demand But Warns of Crude Oil Overproduction

The statistical subcommittee of the committee on refinery statistics and economics, American Petroleum Institute, has prepared its forecast of the economic position of the industry with respect to crude oil and motor fuel for the six-month period ending December 31, 1933. The forecast gives effect to actual conditions as estimated for June 30, 1933, and anticipates reaching an economic motor fuel stock position at the end of the peak consuming period.

The outstanding features contained in the report are:

1. The daily average requirement for domestic crude oil is estimated to be 2,362,000 bbls., of which 2,262,000 bbls. is indicated as being production, and the balance of 100,000 bbls. daily as a reduction in crude oil inventories. Required daily average crude oil to be run to stills —2,308,000 bbls.

2. An increase in total motor fuel demand of 2.9 per cent, compared with the last half of 1932.

3. Inventories of motor fuel on December 31, 1933, should not exceed 46,500,000 bbls. This is 7,305,000 bbls. less than the same date last year.

Crude Oil

Crude oil required is considerably below current production with the result that inventories of this commodity are currently increasing at an alarming rate. While the daily demand for crude is estimated to average 2,362,000 bbls. over the six-month period, it must be borne in mind that during the fourth quarter of the year requirements will be less. It is further pointed out that crude oil production was held in line with demand throughout the year 1932 and in the first quarter of 1933, but since then has increased to a quantity too great for the industry to bear for any protracted period.

Motor Fuel Demand

Total demand for motor fuel is estimated to increase 2.9 per cent over the comparable period of 1932. Domestic demand is indicated to increase 3 per cent while exports will show a slight increase.

During the period of the depression demand for motor fuel declined but slightly when compared with the decline in demand for commodities in general. The present outlook for an increase in motor fuel demand is encouraging as it reflects improvement in general business conditions.

The forces that began to affect exports adversely a year ago continued to be felt but to a lesser degree.

It is estimated that approximately 5,700,000 bbls. in excess of normal were shipped from refineries to consuming centers in May and June of 1932 prior to the imposition of the Federal excise tax but not fully absorbed until the end of the third quarter of that year. The Federal excise tax was increased in June of this year and it is estimated that shipments to distributing points just prior to the imposition of the added tax totaled approximately 2,000,000 bbls., which quantity will probably be absorbed in the early months of the present forecast period. The forecast gives consideration to these factors.

Motor Fuel Inventories

Inventories have been consistently below those of a year ago and the trend is continuing towards economic levels. Currently, runs to stills are at too high a level and there is danger of stocks being greater than necessary at the end of the peak consuming season. The forecast gives consideration to the necessity of reaching economic stock levels at the end of the peak consuming period and thereafter provides for nominal increases to the end of the year. The estimate places inventories as of September 30 at 44,700,000 bbls. and at 46,500,000 bbls. as of December 31.

Gas and Fuel Oil

The supply of gas and fuel oil during the six-month period is estimated to be adequate to meet the demand of the logical markets for these products. If the forecast is used as a guide throughout the period covered, an appreciable improvement in the economic position of the industry should result.

Committee on refinery statistics and economics: D. J. Moran, chairman, A. J. Byles, C. L. Suhr, E. G. Seubert, E. B. Reeser, T. H. Barton, H. C. Wiess, T. A. Dines and K. R. Kingsbury.

TABLE 1

Summary of Forecast of Demand, Economic Stocks and Required Supply, July 1 to Dec. 31, 1933 (Forecast) vs. July 1 to Dec. 31, 1932 (Actual)

(In thousands of barrels)

	Third quarter, 1933		Last quarter, 1933		Six months	
	Total	Pct. change	Total	Pct. change	Total	Pct. change
MOTOR FUEL (Details Table 2)						
Demand:						
Total	115,300	*+2.6	100,100	+3.1	215,409	*+2.9
Domestic	108,000	*+3.0	93,000	+2.9	201,000	*+3.0
Exports	7,300	2.2	7,100	+5.7	14,400	+1.5
Stocks:						
Change during period	—9,800	.....	+1,800	.....	—8,000	.....
Beginning of period	54,500	.....	44,700	.....	54,500	.....
End of period	44,700	.....	46,500	.....	46,500	.....
Supply:						
Total	105,500	+6.3	101,900	+3.4	207,400	+4.8
From imports	.....	.....	.....	.....	.....	.....
From U. S. producers	105,500	+6.5	101,900	+3.7	207,400	+5.1
Straightrun and cracked	96,950	+7.3	92,940	+4.1	189,890	+5.7
Natural gasoline	8,250	—2.1	8,660	—0.1	16,910	—1.1
Benzol	300	+26.1	300	+6.3	600	+15.6
CRUDE OIL						
Demand:						
Total	228,846	+7.5	218,143	+4.5	446,989	+6.0
Export	7,500	+4.2	6,200	+3.1	13,700	+3.7
Domestic	221,346	+7.6	211,943	+4.5	433,289	+6.1
Runs to stills	216,996	+7.1	207,593	+4.7	424,589	+6.9
Used as such	2,110	.....	2,109	.....	4,200	.....
Transfer to fuel (Calif.)	2,250	.....	2,250	.....	4,500	.....
Supply:						
Total	228,846	+7.5	218,143	+4.5	446,989	+6.0
From imports	6,200	+17.4	6,200	—13.5	12,400	—0.4
From domestic production	213,446	+8.0	202,743	+8.6	416,189	+8.3
From stocks	9,200	.....	9,200	.....	18,409	.....
Daily average domestic crude oil requirements:						
Total	2,420	.....	2,304	.....	2,362	.....
From production	2,320	.....	2,204	.....	2,262	.....
From stocks	100	.....	100	.....	100	.....

*These percentages are calculated on adjusted indicated demand figures in order to more accurately show the trend of actual consumption. The latter trend was distorted in reported figures of indicated demand for the first half of 1932, and to a lesser extent for the first half of 1933, due to abnormal shipments having been made in these periods in anticipation of new factors affecting the industry.

TABLE 3

Classification of Stocks of Motor Fuel Indicated in Table 2

(In thousands of barrels)

Date—	At refineries	At terminals, in transit and in pipe lines	Unblended natural gasoline at refineries, at plants and blends at plants	Tot'l motor fuel stocks
June 30, 1933	30,190	20,800	3,600	54,590
July 31, 1933	29,100	20,300	3,500	52,900
August 31, 1933	25,100	19,300	3,350	47,750
September 30, 1933	22,550	18,950	3,200	44,700
October 31, 1933	22,250	18,900	3,100	44,250
November 30, 1933	22,450	18,950	3,050	44,450
December 31, 1933	24,500	19,000	3,000	46,500

Deputy Oil Administrator Has Had Broad Experience

Kenneth M. Simpson, deputy administrator for the oil industry under the National Industrial Recovery Act, is president of the International Chromium Process Corp., New York. He graduated from the Columbia University School of Mines in 1906 with degrees as mining engineer and metallurgist. He spent one year in the engineering department of the Pennsylvania Railroad and had 10 years' experience in mining properties in the West, chiefly as a mining engineer in Nevada.

(C) Underwood & Underwood

KENNETH M. SIMPSON

Returning to New York, Mr. Simpson set up as a consulting mining engineer and metallurgist. In the last year of the World War he was a technical adviser in the War Department, following which he again went back to New York and practiced as a consulting engineer. He spent a year abroad professionally, mostly in England in an advisory capacity on certain British mining properties. More recently he engaged in the development of chromium.

Mr. Simpson is an intimate friend of Gen. Hugh S. Johnson, administrator of the NRA. His professional background and his broad experience are said to qualify him as an "industrial adept" within the prescription of his chief's definition. An industrial adept, according to General Johnson, is a man who in dealing with leaders in industry "won't have his pants traded off to make me ridiculous, because in every one of these hearings and codes it is my responsibility."

COLON WELL BROUGHT IN

Colon Oil Corp.'s subsidiary in Venezuela reports Well CM-13 brought in producing 157 bbls. per day, three-quarters inch flow plug, casing pressure 1,425 pounds, tubing pressure 810 pounds.

TABLE 2

Details of Forecast of Demand, Economic Stocks and Required Supply of Motor Fuel—July 1, 1933, to December 31, 1933—By Months

(In thousands of barrels)

	July	August	Sept.	3 Mos.	October	November	December	3 Mos.	6 Mos., 1933	6 Mos., 1932
Demand:										
Total	38,500	38,900	36,900	115,300	35,500	33,400	31,200	100,100	215,400	*205,619
Domestic	36,000	37,500	34,500	108,000	33,000	31,000	29,000	93,000	201,000	*191,436
Exports	2,500	2,400	2,400	7,300	2,500	2,400	2,200	7,100	14,400	14,183
Stocks:										
Change during period	—1,600	—5,150	—3,050	—9,800	—450	+200	+2,050	+1,800	—8,000	—7,753
Beginning of period	54,500	52,900	47,750	54,500	44,700	44,250	44,450	44,700	54,500	61,553
End of period	52,900	47,750	44,700	44,700	44,250	44,450	46,500	46,500	46,500	53,800
Supply:										
Total	36,900	34,750	33,850	105,500	35,050	33,600	33,250	101,900	207,400	197,866
From imports	0	0	0	0	0	0	0	0	0	575
From U. S. producers	36,900	34,750	33,850	105,500	35,050	33,600	33,250	101,900	207,400	197,291
Straightrun and cracked	34,030	31,950	30,970	96,950	32,020	30,620	30,300	92,940	189,890	179,681
Natural gasoline	2,770	2,700	2,750	8,250	2,930	2,830	2,850	8,660	16,910	17,091
Benzol	100	100	100	300	100	100	100	300	600	519
Probable straightrun and cracked yield	44.5%	44.6%	45.0%	44.7%	45.0%	44.8%	44.5%	44.8%	44.7%	44.8%
Required crude runs to stills:										
Total	76,472	71,702	66,822	216,996	71,155	66,348	69,090	207,593	424,589	400,839
Daily	2,467	2,313	2,294	2,359	2,295	2,278	2,196	2,256	2,308	2,178

Equipment of East Texas Wells for Mechanical Production Now Regarded as Wise Policy

By L. G. E. BIGNELL
Petroleum Engineering Editor

With the wells in the East Texas Field changing from a natural to a mechanical form of production it is only to be expected that many new problems will soon confront the operator there. The field has not reached that stage where enough data are available to show just what these problems will be but based upon experiences in other Woodbine sand fields some of them may be anticipated.

Everyone expects the wells to make salt water. The length of time before water will become a serious problem is not now known but it is generally agreed that there will be a gradual movement of the water across the field from west to east. Wells on the west edge of the field have been making water for some time, as have wells in the east edge of the Joiner, Kilgore and Lathrop areas.

From analyses of west and east edge water it appears that these waters are of different origin and it has been suggested that those on the west side are true Woodbine waters while on the east side they are coming from the Georgetown lime beneath the Del Rio and Woodbine formations. This east side water evidently got into the Woodbine sand through wells drilled too deep and not properly plugged back.

Analyses show that east side waters contain from 10,000 to 15,000 parts per million of solids while the west side water runs from 60,000 to 65,000 parts per million in solids. Dr. F. H. Lahee in a report on "Mexia and Tehuacana Fault Zones" in "Structure of Typical American Fields" published by the American Association of Petroleum Geologists reports solid contents of waters from Mexia as from 17,332 to 39,500 p.p.m.; Wortham, 22,000 to 24,379 p.p.m., and Powell from 8,307 to 19,000 p.p.m. Doctor Lahee quotes largely from the work of R. B. Whitehead and R. H. Fash on "A Study of the Application of Oil Field Water Analysis to the Fault Zone Type of Accumulation."

Water Movement

The Woodbine formation, usually referred to as the Woodbine sand, is the lowermost division of the sediments of Upper Cretaceous age. The sandy phase of this formation varies in thickness from a few feet on the east side of the field to possibly 1,000 feet in the center of the basin. In the East Texas Field the production is found in sands of this formation 3,430 and 3,800 feet below the surface, or at a subsea level of 3,100 to 3,150 feet near the east edge to between 3,315 and 3,330 feet on the west edge.

The original water level has been established at between minus 3,315 and minus 3,325 feet below sea level and it has been assumed that the contact between the oil and water formed a comparatively level plane across the entire field. The normal dip of the producing sands is to the west at the rate of about 1 foot to the 100 feet.

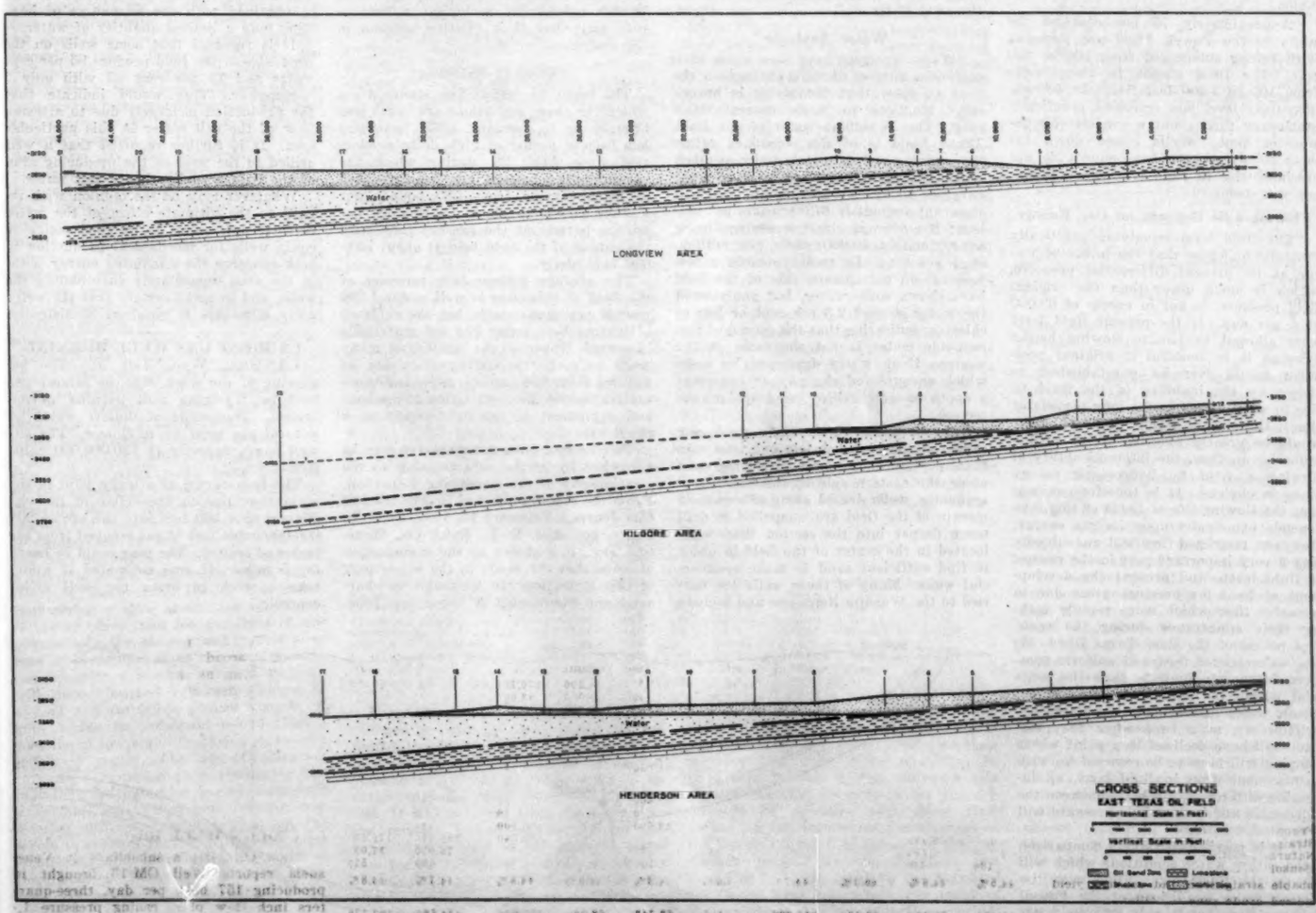
D. R. Snow, vice president in charge of geology, Barnsdall Oil Co., Tulsa, in a paper on "Water Encroachment in Bartlesville Sand" published in The Oil and Gas Journal April 21, 1932, included the accompanying diagrammatic west-east cross section of the Woodbine sand basin, showing the location of the East Texas Field and the Sabine uplift. This section indicates that the hydrostatic head developed in this section is approximately 3,650 feet at point of contact between oil and water.

Based upon a weight of .434 pound per foot of height of a fresh water column this hydrostatic head should exert a static pressure of approximately 1,585 pounds at the minus 3,320-foot datum line in the East Texas Field. It is reported that the original bottom hole pressure for the field was about 1,650 pounds per square inch. This difference between static hydrostatic pressure and bottom hole pressure may be accounted for if the specific gravity of the salt water is about 1.04.

In the July bulletin of the American Association of Petroleum Geologists, H. E. Minor and Marcus A. Hanna, geological department, Gulf Production Co., Houston, Tex., have a paper on "East Texas Oil Field" in which they show cross sections of the field indicating original zones of water-oil contact. Under the caption "Water" they make these statements:

"The eastward projection of the present water level (shown in cut) indicates that 20,000 feet of the Longview (Lathrop) area, 10,000 feet of the Kilgore area, and 19,000 feet of the Henderson (Joiner) area are underlain with bottom water. The wells used in establishing these levels are the Texas Co.'s No. 1 Waddell at —3,300 feet in the Longview area, the Sun Oil Co.'s No. 1 Barker at —3,309 feet in the Kilgore area, and the Deering & Sons' No. 1 Goforth at —3,304 feet in the Henderson area.

"These encroachment distances, applied



Cross sections of East Texas oil fields showing original area of water-oil contact. From Minor and Hanna's paper in July issue A. A. P. G. Bulletin.

to the entire field, show 58,000 acres, or more than 50 per cent of the field, to be underlain with bottom water at the present time (January, 1933).

Effectiveness of Water Drive Doubted

"The lack of immediate and pronounced water encroachment has caused some doubt as to the effectiveness of the water drive. The withdrawal of 234,000,000 bbls. of oil, which would void 150,678 acre feet of sand of 20 per cent porosity, has had apparently little effect on the movement of the edge water. This is not surprising when it is considered that 58,000 acres of the field are already underlain with water and such a withdrawal would account for a vertical rise of only 3.9 feet in this area.

"The ability of salt water to maintain field pressures has been entirely lacking in sand fields of which the writers have any knowledge.

"The quantity of flow of water into a field is dependent on the differential pressure between the effective hydrostatic head and the bottom hole pressure within the field. As long as field pressures are sufficiently high to flow the oil, the differential pressure will necessarily be low. Consequently, the maximum amount of water ingress will take place after the field has lost its flowing pressure and wells are being pumped from near bottom.

"The Powell Field, occupying a similar position with reference to the East Texas synclinal basin, being subjected to the same general hydrostatic head, and deriving its oil from the same Woodbine sand members, should be comparable, relatively, to the East Texas Field. As an illustration, the Powell Field, of 2,800 acres, produced 214,000 bbls. of fluid per day, 112,000 bbls. of which was water, from 700 pumping wells, six months after the peak of production was reached. The present daily withdrawal of fluid is 68,000 bbls., 2,800 of which is oil, from 165 wells.

"Approximately 75 per cent of the wells in the Powell Field are pumping with tubing submerged from 100 to 200 feet. The fluid stands in these wells from 100 to 1,200 feet from the bottom. The fluid level has remained practically stationary throughout a considerable period of time. Wells closed down for three to six months have shown no appreciable rise in fluid level when pumping was resumed.

Flowing Life Depends on Gas Energy

"The fluid level remaining practically constant indicates that the influx of water at its present differential pressure, which is much lower than the original field pressure, is not in excess of 68,000 bbls. per day. If the present fluid level were allowed to rise to flowing height (though it is doubtful if original pressures would ever be re-established as shown by the inability of the fluid to rise in wells closed in for long periods of time), the present inflow of 68,000 bbls. would be greatly reduced. With such a reduction in flow, the impracticability of flowing a field by hydrostatic energy alone is obvious. It is therefore evident that the flowing life of fields of this type depends principally upon its gas energy. However, restricted flow will undoubtedly play a very important part in the control of fluid levels and prevent the development of local low-pressure areas due to excessive flow which were rapidly making their appearance during the open-flow period of the East Texas Field. So long as restricted flow and uniform pressure sufficiently high to flow the wells exist within the field, comparatively little salt water ingress can take place.

"However, at a time when the pressure shall have declined to a point where pumping will have to be resorted to, with a consequent drop in fluid level, an increasing differential pressure between the hydrostatic and bottom hole pressure will be created.

"If it is possible to make a comparison of the future water conditions which will exist in the East Texas Field with the existing water conditions of the Powell Field, we find that Powell, with its 2,800 acres of producing area and its 9 miles of frontal sand exposure, has reached a stage where fluid levels remain constant under a 68,000-bbl. fluid withdrawal. If this analogy is applied to East Texas, then when equilibrium between fluid levels and withdrawals has been established, an influx of approximately 408,000 bbls. of water can be expected through the 50 miles of frontal sand along the basinward limits of the field. However, as in the case of Powell, when near bottom pumping occurs in the majority of wells, the differential pressure will be so increased that the East Texas Field will be capable of producing possibly 700,000 bbls. of water daily.

"The result of continuous pumping of 10,000 wells is obvious, provided the maximum ingress of water into the field at the minimum bottom hole pressure is not more than 700,000 bbls.

"Rapid water advancement will, therefore, be held in check until the field pressures adjacent to the water fall below the effective hydrostatic head.

"A great many of the west side wells in the East Texas Field are completed only 2 to 6 feet in the sand, and it is not unlikely that the uniform pressures being maintained by restricted flow will cause such wells to pass from pipe line oil wells to water wells in a very short interval of time, thus avoiding the cost of producing large quantities of water in order to drain the sand of its oil."

WATER ANALYSES

	East Texas Field		Upshur County	Van Field
	Kilgore Nat. Securities No. 1 Vernon	Longview Stanolind No. 1 Everetts	Amerada No. 1 Wade	Humble No. 2 Blake
Sodium and potassium	24,540	24,652	25,185	24,325
Calcium	1,388	1,432	1,452	1,417
Magnesium	282	235	350	401
Sulphate	278	259	110	42
Chlorine	40,598	40,598	42,245	41,000
Bicarbonate	569	387	250	256
Total	67,649	68,964	69,592	67,441
Secondary alkalinity	0.8	1.8	0.2	0.36
Primary salinity	92.0	91.5	91.6	91.08
Secondary salinity	7.1	6.6	8.2	8.56

Water Analyses

"Water analyses have been made of a sufficient number of wells throughout the field to show that the water is practically identical in wells several miles apart. The Woodbine water of the East Texas Field is of the secondary saline type, having approximately twice as much concentration of dissolved salts as ordinary sea water. An average analysis will show approximately 67,000 parts per million; the average chlorine content being approximately 40,000 parts per million, or 4 per cent. In recent months a few wells along the eastern side of the field have shown some water, but analyses of the water showed 2.5 per cent or less of chlorine, indicating that the source of this east-side water is not the same as the western flank water developed by wells which encountered the pay at too great a depth or were drilled too deep into the section.

"The bevelling of the main producing sands on the east has left only the thin basal portion of the main producing sand along the eastern side of the field. Consequently, wells drilled along this eastern margin of the field are compelled to drill much deeper into the section than wells located in the center of the field in order to find sufficient sand to make commercial wells. Many of these wells are carried to the Washita limestone and include in their settings all sands and sandy shales lying between the base of the Austin chalk and the Washita limestone.

"It is very probable that these deeper sands and sandy shale members, though thin and lenticular, contain oil held in place by water. Due to the thinness and lenticularity of these members, the oil content is not large and already sufficient oil has been withdrawn from them to allow the edge water of these pay sands to make its appearance. There is a possibility, if this proves to be the case, of this edge water becoming a top-water menace to adjacent down-dip wells. Wells of this class making 2.5 per cent chlorine water are located on the east side of the field.

"The placing of the East Texas producing horizon into its correct position in the Eagleford-Woodbine group on the west is difficult on account of lack of paleontological information. Although the continuity of the East Texas sand is somewhat in doubt, the water analysis given below show the marked similarity of the waters of the Van Field, Van Zandt County, the Amerada Petroleum Corp.'s No. 1 Wade, Upshur County, and the field waters of East Texas.

"These waters are practically identical and support the contention that the producing sands of the field are correlative with the Woodbine sands on the west, though subsequent geological nomenclature may alter their relative position in the geological section."

Future Probabilities

The paper by Minor and Hanna from which the above quotations are taken was brought up to January, 1933, but there has been a period of high daily production since April 28, during which the bottom hole pressure has been reduced at rates varying from 4.85 pounds per million barrels to about 1⅛ pounds per million barrels at the present time with the output of the field held at about 750,000 bbls. daily.

The average bottom hole pressure of the field at this time is well under 1,200 pounds per square inch, but the evidence of bottom hole water has not materially increased. However, the inability of many wells to make their daily allowable by natural flow has become more and more noticeable and the installation of mechanical equipment is moving forward at a rapid rate.

This lack of bottom hole water may be explained by giving consideration to the stratigraphy of this producing formation. From the report published in The Oil and Gas Journal, February 12, 1932, by O. L. Brace, geologist, E. L. Smith Co., Houston, Tex., it is shown by the examination of cores that the sands in the upper part of this formation are lenticular in character and surrounded by impervious beds. This irregular stratigraphy will make it difficult for the water to move upward through this formation to reach the base of the wells for a large portion of them are drilled into the "pay zone" only a few feet. It now seems apparent that the water drive forecast early in the life of the field is being dissipated by the loss of energy necessary to move the water around partings between sand members.

There is still energy left in the individual sand lenses that is delivering the oil to the well, but at a constantly decreasing rate. How long this energy will be sufficient to drive the oil into the well and also deliver it into the oil and gas separator depends upon permeability of the sand and other purely local conditions.

If this remaining energy is used for the double purpose of delivering oil to the bottom of the hole and also to the surface it will not be available as long as it would be if the mechanical lifting were resorted to promptly when the well shows decline in capacity.

Providing Mechanical Equipment

Many operators realizing this are providing some form of mechanical equipment to lift the oil to the surface. These different types of units are discussed in other articles in this issue and in The Oil and Gas Journal of June 22, 1933.

The conclusion drawn by Minor and Hanna that when water is actually present in the wells it establishes a varying fluid level is well taken. Just where this fluid level will occur will depend upon local conditions and perhaps to some extent upon the position of the working barrel in the hole.

Some operators maintain that the working barrel should be placed low and all fluid removed as it comes to the hole in order that the full volume of oil be recovered. Others believe that skimming, or placing the barrel high, will suffice and that by this method as much oil can be obtained with the advanatge of handling only a limited quantity of water.

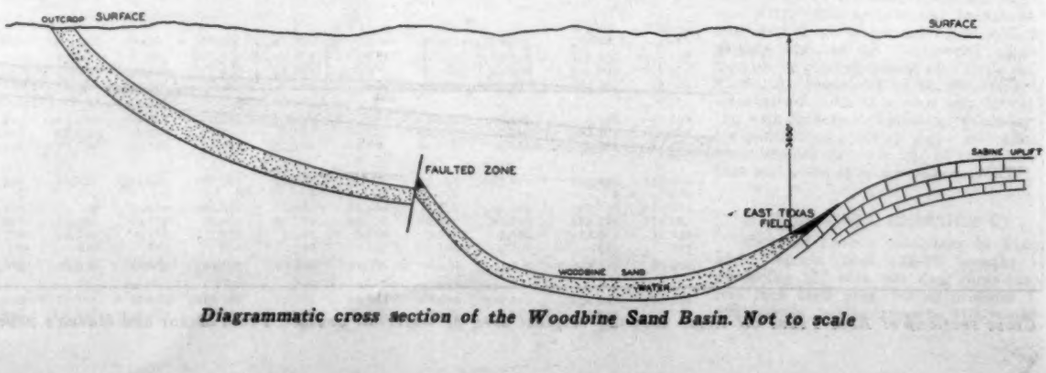
It is reported that some wells on the west edge of the field produce 85 per cent water and 15 per cent oil with only 5 horsepower. This would indicate that the production is largely due to artesian flow of the salt water in this particular area. It is further reported that a well drilled to the west of the producing area of the field actually flowed salt water.

Whatever may be the opinion with regard to the ultimate effect of the water drive it now seems to be good policy to equip wells for mechanical production to both conserve the remaining energy within the area immediately surrounding the wells, and to make certain that the well's daily allowable is obtained consistently.

LARGEST GAS WELL BURNING

LANDER, Wyo., July 31.—The beginning of the week saw the largest gas well in Wyoming still burning uncontrolled. Thousands of dollars worth of natural gas went up in flames. The gas well has a capacity of 120,000,000 cubic feet.

The fire started at a leaky joint in the main flow line in the cellar of the rig. Flames shot 300 feet into the air as 20,000,000 cubic feet of gas escaped from the leak and ignited. The roar could be heard for 5 miles. It was estimated it would take a week to bring the well under control.



Diagrammatic cross section of the Woodbine Sand Basin. Not to scale

Measurement Method and Means of Preventing Formation of Undesirable Gum in Gasoline

By T. H. ROGERS and VANDERVEER VORHEES
Standard Oil Co. (Indiana)*

The problem of gum formation in gasoline—its effects, methods of measurement and means of prevention—has been the subject of numerous articles in the past few years, and it therefore appears superfluous to indicate the significance or status of this problem. Two recent papers from this laboratory have covered particularly the correlation of an accelerated oxidation test with the storage of gasoline and the use of antioxidants. Several other accelerated tests are in use in America and it appears of interest to present some comparison of the various stability tests. Also further attention to the practical use of inhibitors is presented.

Stability Test Methods

Aside from the copper dish test, accelerated oxidation tests for gasoline which have been proposed measure either the amount of gum formed during a fixed period of oxidation or else the induction period of the gasoline as indicated by oxygen absorption. A test of each of these sorts was originally proposed by Voorhees and Eisinger, using glass flasks and a relatively low oxygen pressure. In recent work the induction period test has been used exclusively in this laboratory, in as much as it affords a much more complete picture of the oxidation behavior of the gasoline than does the test with fixed time. Also in the fixed-time test the amount of gum formed is not a linear function of the stability of the gasoline. The use of a metal bomb with much lighter oxygen pressures is more widely used in America, and a number of variations of the apparatus proposed by Hunn, Fischer and Blackwood are now employed. As will be shown later, it appears that the conditions of oxidation in these various bomb tests differs sufficiently to cause significant differences in the results obtained. As a matter of comparison it is interesting to note that a standard method of test for the stability of benzol has been adopted by the National Benzol Association. This method involves passing oxygen through the sample of benzol kept at a temperature of 100° C. under a return condenser. So far as is known, this method has not been applied to gasoline, and it would appear that the presence of much more volatile constituents in gasoline would make it much less suitable than for benzol.

The Voorhees stability test differs from the various metal bomb tests not only in the apparatus employed, but also in principle as to the criterion for determining the breakdown point. This point is determined by the rate of oxidation and does not represent the point at which a fixed pressure drop takes place, as is usual in bomb tests. During the induction period a slow absorption of oxygen is taking place, and for gasolines of approximately the same stability this slow rate of absorption does not vary greatly. Consequently a gasoline of good stability will have absorbed a larger amount of oxygen and formed a greater amount of gum during its induction period than a gasoline of low stability during its shorter induction period. The use of oxidation rate as a criterion thus results in the fact that the induction period represents a variable amount of gum formed, considering different gasolines, but on the whole it appears that it affords the most significant and reproducible measure of the oxidation characteristics of the gasoline. When the induction period is defined as the time for a given small pressure drop it often becomes a matter of difficulty to decide just when that point is reached, since the slope of the curve is so flat. Furthermore, a slight leak will greatly alter the result, whereas it does not appreciably affect the result when the break point is defined by the rate.

It has been objected that the amount of gum formed in the oxygen absorption test may be well beyond the tolerable quantity at the end of the induction period, and that the gum formation should therefore be taken into account. However, it must not be forgotten that the accelerated test is strictly a laboratory tool and need not parallel actual ageing conditions as long as the stability indicated by the induction period correlates with the gum formed in actual storage.

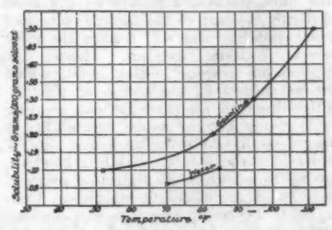


Figure 1—Solubility of benzyl-aminophenol in low temperature vapor phase cracked gasoline and in water

Unfortunately the users of the various metal bomb tests have not agreed in selecting the same amount of pressure drops in defining the break point. It appears that 1, 2 or 5 pounds drop may be used, and the papers which have been presented are often indefinite on the subject. This latter indicates that no absolutely fixed indication is used, but that inspection of the general appearance of the pressure chart is essential. Since the initial rate of oxygen absorption is very slow, it is obvious that even a pound or so difference in pressure drop may cause a marked difference in the result. Other variations in the bomb test used are: Size of bomb, the amount of gasoline used, filling temperature, and correction for lag. The following table shows the essential variations in present practice, in so far as indicated by published articles. Similar data for the Voorhees test are included for comparison.

Type—	Vol. gasoline, ml.	Init. press. lbs. gauge	Corr. for temp. lag. min.	Approx. vol. (NTP.) O_2/vol. gasoline	Criterion of break:
Standard Oil (Ind.)	100	0	3	11-9	Rate.
Ethyl Gasoline	100	100	15?	23-8	Meas. drop in 15 min.
Army Air Corps.	200	100	0	10-4	(Gum 4 hrs.)
Vacuum Oil Co.	100	100	45	26-5	"Def. evidence of drop."
Bureau of Standards	100	100	48	22-0	"When drop begins."
U. S. Naval Ex. Sta.	236	100	0	5-1	(Gum 4 hrs.)
Univ. Oil Prod.	200	100	15	8-9	"Sharp drop."
Standard Oil N. J.	25	100	15	8-8	2-lb. drop.

Variation in the amount of oxygen, referred to the gasoline, would be expected to cause a change in the induction period, since the amount of oxygen absorption for a given pressure drop varies with the total volume of the system. It will be noted from the table that the relative amount of oxygen present varies several fold in the different tests. Another difference in practice which has already been stressed by some is the correction temperature lag, no correction at all being made in some cases. Altogether then it appears that agreement between the results of the different bomb tests could not be expected. No comparative data are as yet available.

Because of the lower pressure and the use of a different criterion of the break, the results by the Voorhees test will run higher than for the 100-pound bomb tests, particularly for gasolines of good stability. The Voorhees test has a distinct advantage afforded by shaking, the temperature lag amounting to only three minutes. Shaking also adds to the reproducibility of the results by avoiding localized oxidation, although this point has not been as thoroughly tested as might be desired.

Work in this laboratory on the correlation of this stability test with storage has involved the use of a bottle storage test at 95° F. to establish a basic relationship. Other comparisons involved were storage tests in cans, barrels and small tanks. It was shown that, even in small tanks, dearth of oxygen becomes a significant factor in storage life. Some variation, in the relationship between stability test and storage behavior with different kinds of gasoline was obtained, but altogether the results led to the conclusion that an induction period of 400 minutes is desirable for gasoline subject to storage for periods up to a year at the prevailing temperatures of the Chicago region. Further results have been obtained since preparation of the paper covering this work are in substantial agreement with the previous data. A recent paper by Winning and Thomas presents work on the correlation of the Standard of New Jersey bomb test with storage. Their results showed rather unsatisfactory correlation, some samples showing unexpectedly poor storage life in view of the induction period. They show that the use of the copper dish test in addition to the breakdown test may serve to more adequately predict storage life, although it is admitted that this is not a satisfactory, permanent solution of the problem.

The work presented by these authors illustrates the practical difficulties of obtaining satisfactory storage data, and it may be that some of the discrepant data are simply a reflection of the irregularities often encountered in such work. A further point is the fact that many of the gasolines investigated had appreciable amounts of gum present at the start of the test. With samples having almost 10 mg. per 100 ml. of gum at the start, the time to reach the 10 mg. limit would appear to be subject to considerable error. In comparing their work with that of this laboratory it may be noted that their gasoline had much lower stability. In part this is due to the different test method; making corrections for the differences in pressure and using their values for the amount of gum formed at the 2-pound drop, it is calculated that induction periods by the Voorhees test would be 1.7 times those by the Standard Oil Co. of New Jersey test. For many of the gasolines having induction periods comparable to that indicated as desirable commercially, the storage tests had not been completed.

Use of Antioxidants in Gasoline

In recent years much interest has developed in the stabilization of motor fuels by treatment with antioxidants which catalytically retard or prevent oxidation and formation of color and gum in cracked gasoline and in motor benzol. The growing importance of this method of treating motor fuels is evidenced by the increasing number of scientific publications and patents on the subject, and also by the fact that numerous refiners have adopted this method of treating their product and have proved its reliability. One American refiner has, within the past four years, made and marketed over 1,500,000 bbls. of high octane, vapor phase cracked gasoline stabilized with antioxidants with satisfactory results. The most effective substances found belong to the classes of

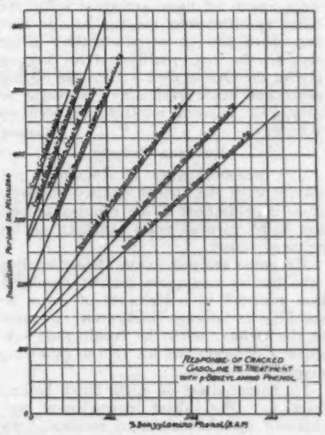

Induction Period in Minutes
Response of Cracked Gasoline to Treatment with p-Benzylamino Phenol
p-Benzylamino Phenol (B.A.P.)

Figure 2

aminophenols and polyphenols such as pyrogallol, catechol, etc., and the naphthols.

In considering what antioxidants to use, there are several well understood criteria which a substance must meet if it is to suit practical needs satisfactorily. The first of these is obviously inhibiting power or antioxidant effectiveness. Others might be arranged in the following order of importance: Gasoline solubility; water solubility; color solubility in gasoline solution in light and dark; availability and cost; physical form; odor and, in some cases, volatility.

In the matter of effectiveness, it is ordinarily desirable to use substances of high effectiveness, in which case very small amounts are required. Our work has been aimed towards this end for several reasons, chief among which was the desire to use a gum stabilizer of such effectiveness that the amount required would not be sufficient to alter adversely any other property of the gasoline. In a previous paper the present authors gave results obtained with a wide variety of substances and showed that the aminophenols were among the most active inhibitors found. Monobenzyl-p-aminophenol (B.A.P.), for example, is effective in concentrations usually below 0.005 per cent.

In contrast to compounds of this character, there are certain by-products of petroleum refining and also of wood and

(Continued on Page 28)

*World Petroleum Congress, London, England.

Several Angles to Problem of Securing Quality Kerosenes From Crude Oils in California

By G. H. VAN SENDEN
Shell Oil Co. of California*

This paper reviews briefly the development of kerosene refining in one of the larger California refineries for the past 10 years. The subject is considered from an historical as well as a technical viewpoint.

In 1923 only a small yield of kerosene distillate was obtained from Los Angeles Basin crude. As a result of ineffective fractionation and because of the type and degree of refining then employed, the finished kerosene was of inferior quality as judged by today's standards.

The kerosene for the Orient is now required to meet specifications which include requirements of 27 Saybolt color and rather stringent color stability tests, with the result that it is fully equal to the better domestic products.

A further outlet for California kerosene includes the American and European market, which has demanded a better quality kerosene, particularly stipulating a product of the highest burning quality. As a result of more stringent color stability specifications for the Asiatic market, there now is no outstanding difference in the two qualities, since in supplying the Orient with a kerosene of good color and color stability a kerosene of very good burning quality has been developed.

Refining Process

The present paper is concerned primarily with the Orient quality kerosene, since improvement of the refining process has had improved color stability as the primary object.

Kerosene shipped to the Orient against the earlier and more lenient specification resulted in complaints of color instability in storage and even en route to the Orient, with the result that subsequent observations led to the following suggested remedies:

1. Elimination of high final boiling fractions. The initial improvement was obtained by elimination of residual fractions which were carried over into the kerosene distillate in the relatively inefficient distilling units. This was obtained by a rearrangement of the Trumble distilling units so as to permit improved dephlegmation.

2. Elimination of high boiling range kerosene fractions. It was established that color instability of an acid-treated distillate was connected with the presence of light stove oil fractions in the kerosene distillate, as these admittedly were difficult to treat satisfactorily with sulphuric acid. After the final boiling point of the kerosene distillate was lowered from approximately 300° C. to approximately 285° C., a treatment with from 10 to 15 pounds of 98 per cent sulphuric acid gave a finished product having a color of 22 Saybolt.

This quality kerosene apparently found a ready market and similar material was shipped to the Orient until 1928. In that year an Edeleanu plant was installed at the refinery. Experiments indicated and plant operations confirmed that this process would yield a kerosene superior to the acid-treated material and at the same time permit an increase in the final boiling point to approximately 300° C., with resultant increased distillate production from the crude oil.

3. Increased color requirements. Continuation of color difficulties resulted in our laboratories carrying out extended experiments in an effort to develop a laboratory test which in a short time would duplicate the color deterioration resulting from handling and shipping followed by storage in the Orient of from 6 to 12 months.

In May, 1932, more stringent specifications were introduced which included an initial color of 27 Saybolt minimum and a Hillman test[1] of 26 minimum. It was found not practicable to manufacture a 300° C. endpoint kerosene which complied with these limits, and consequently further shipments were manufactured to a 270-280° C. F.B.P. This resulted in a kerosene of the highest quality.

Technical Development

Refining of kerosene to prescribed specifications is not only dependent upon the origin of the crude oil and its inherent characteristics, but also upon the variable factors which are listed herewith: (1) boiling range and efficiency of fractionation, (2) refining process, and (3) conditions of storage and shipment.

1. Boiling Range.—Consideration of the boiling range must include not only the initial and final boiling points but also the shape and character of the distillation curve between these two limits. Impurities may be present in the kerosene, either from contamination or improper fractionation, in such small amounts that they are undetected by the A.S.T.M. distillation but still may cause the distillate to be untreatable.

Contamination with heavy residue, particularly cracked, must be avoided. Laboratory treatments were made, adding 0.005 per cent by volume of fuel oil to good quality kerosene distillate, with the result that the distillate became practically untreatable. The siuation revealed a sensitiveness of kerosene distillate to contaminations that is of considerable significance.

In commercial fractionation of petroleum there are no definite breaks between fractions but a fairly smooth gradation from the lightest white oils to the heaviest dark oils. Consequently it is logical to assume that those fractions nearest to the dark oil fractions will be the most difficult to treat to the desired color and color stability and will require the most severe refining methods. Hence, the higher the average boiling point, which is determined by the shape of the distillation curve, the more difficult treating will become and, of course, treatability is decreased by inclusion of heavy cuts of stove oil through ineffective fractionation, owing to mistakes in design or to overloading of the distilling equipment. Conversely, kerosene treating will become easier if high gasoline fractions are substituted for the higher kerosene fractions. Addition of the higher gasoline fractions without elimination of the higher kerosene fractions will not materially improve color stability. Hence, a very important factor influencing kerosene color stability is the boiling range and the efficiency of the fractionation.

Verification of the deleterious effect of heavy fractions on kerosene color stability will be found in the following table, which shows reports on kerosene shipped to the Orient since March, 1931:

Initial color, ° Saybolt	Hillman test, ° Saybolt	Direct oxidation test	Boiling classification	Complaints of discoloration
25+	25+	13	High e.p.	Yes
20+	20+	10	High e.p.	Yes
24	23	*20	High e.p.	Yes—sl.
26+	26+	33	Low e.p.	No
29	29	29	Low e.p.	No
25	25	17	Low e.p.	No
28	28	23	Low e.p.	No
27	27	22	Low e.p.	No
27+	27	24	Low e.p.	No
27	26	22	Low e.p.	No
27	26+	22	Low e.p.	No
26	26	22+	Low e.p.	No

*This cargo was double Edeleanu treated, which may explain the good D.O. test on a shipment of high endpoint quality which became discolored.

Kerosenes of graduated boiling ranges were produced experimentally at the distilling units to illustrated the changing character of the kerosene with variation in the distillation curve. A few of these are shown in the accompanying table.

The above experiments were carried out prior to the standardization of the Hillman lead peroxide test. Figures for the direct oxidation test (described in Section V) have been shown to illustrate the relative treatability of the different kerosenes. It should be realized that direct oxidation tests on laboratory treated kerosenes invariably are lower than those obtained by comparable plant treatments, and therefore these results should not be used too literally to interpret the actual color stability.

2. Refining Process.—Plant refining methods have been confined to the use of (1) strong sulphuric acid, and (2) the Edeleanu SO_2 process. Experimental laboratory treatments with weak acid, caustic soda, clay, etc., have been made at various times without obtaining a satisfactory product.

The strength of the acid and the amount used has varied with the quality of the kerosene distillate and the standard expected of the finished product. Acid strength of 93 per cent predominated until the amount required became so large that experiments were made with 98 per cent and 103 per cent acids. The fuming acid introduced acid sludge separation difficulties, but the 98 per cent acid was adopted as the standard strength prior to the use of the Edeleanu method.

A similar variation from 35 per cent by volume minimum to 100 per cent maximum has been necessary in refining kerosene of varied quality with SO_2.

3. Conditions of Storage and Shipment.—Refined kerosene is stored in white painted, uninsulated, steel tanks of 55,000, 80,000 or 120,000 bbls. capacities with all handling through white oil lines exclusively. Ship cargoes are loaded directly from these tanks via the gasoline lines with a precautionary line wash to eliminate possible flashpoint contamination.

Certain kerosene cargoes have become discolored during the period of the voyage to the Orient, while similar oil remained in steel storage at the refinery for two to three years without material discoloration. This situation indicated that the kerosenes in the shipments had been exposed to conditions that did not exist in the local storage tanks and which were harmful to the color stability. This no doubt is largely due to rolling of the ship en route and also to handling.

(a) Temperature.—The temperature of the oil in storage varies from about 60° in winter to about 80° in summer, with the vapors above the liquid reaching 120° F. on warm days. During shipment,

(Continued on Page 29)

*Paper presented at World Petroleum Congress, London. Mr. Van Senden is vice president in charge of manufacturing for the Shell Oil Co. of California.

[1]E. S. Hillman: The Refining of Kerosene to a Color Stable Product. World Pet. Congress, 1933.

TABLE SHOWING RELATION OF KEROSENE QUALITY TO CHANGES IN BOILING RANGE

Fraction No.:	Group A 1	2	3	Group B 4	5	6	Group C 7	8	9
Boiling range, deg. C. (approx.)	175–260	190–260	205–260	175–280	190–280	205–280	175–300	190–300	205–300
Gravity, deg. A.P.I.	40.7	39.7	39.5	39.5	39.2	38.5	38.8	38.4	37.9
Color, A.S.T.M.	1	1	1	1	1	1	1	1	1
Flashpoint, Tag. c.c., deg. F.	135	156	168	138	151	169	142	160	178
Viscosity, centipoises at 60° F.	1.80	2.09	2.15	2.17	2.09	2.40	2.46	2.42	2.79
Sulphur, per cent by wt.	0.12	0.12	0.14	0.16	0.17	0.19	0.15	0.18	0.20
Aromatics, per cent by vol.	18.0	18.0	18.5	18.0	19.0	19.0	18.5	18.5	18.5
A.S.T.M. distillation:									
I.B.P., deg. C.	183	196	206	176	188	200	185	194	211
20 per cent	203	215	220	214	213	222	220	221	231
50 per cent	219	227	230	231	230	234	237	237	245
90 per cent	240	247	251	264	258	262	275	273	277
F.B.P., deg. C.	255	263	268	288	277	282	299	295	300
Recovered, per cent	98	98	98	98	98	98	98	98	98
Distilled at 200° C., per cent	16.5	1.0	....	6.5	4.5	....	3.0	1.0	....
Distilled at 205° C., per cent	23.0	3.0	....	10.0	8.0	1.0	6.0	3.0	....
Distilled at 210° C., per cent	32.0	10.0	2.0	15.0	14.5	2.5	9.5	6.5	....
Distilled at 235° C., per cent	45.0	47.0	35.0	38.0	41.0	28.0	28.0	27.5	10.0
Each fraction was treated with 100 per cent by vol. SO_2 and 4 bbls. 93 per cent H_2SO_4 at the laboratory, yielding 85 per cent by vol.									
Color stability—direct oxidation	5	5	5	1	0	—7	—7	—6	—13
Gravity, deg. A.P.I.	43.5	42.5	42.4	42.5	42.3	41.7	41 9	41.6	41.2
Color, Saybolt	28	30	29	30	28+	30	29	30	30
Viscosity, centipoises at 60° F.	1.77	2.12	2.22	2.29	2.17	2.43	2.46	2.49	2.82
Sulphur, per cent by wt.	0.03	0.03	0.03	0.03	0.04	0.04	0.05	0.06	0.06
Aromatics, per cent by vol.	6.5	5.3	7.0	6.5	8.0	7.0	7.0	8.0	7.0

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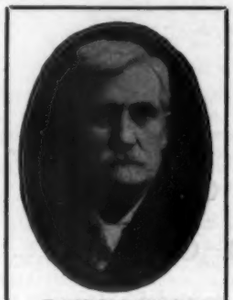

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The New Code

One thing can be said for the oil industry code drafted by the National Recovery Administration: Considering the novelty of the economic theory being tried out, the intensely complicated factors peculiar to the petroleum industry, and the conflicting claims presented, the administration officials kept their feet on the ground.

The prime purpose of hastening recovery by increasing purchasing power through widening employment could not, it was recognized, be effected and continued unless industry was enabled to foot the bill by better prices.

In the oil business especially, where the market structure had been shot to pieces, it was manifestly impossible to add to the expenses unless prices were increased. It was just as clear that there could be no increase in prices so long as overproduction glutted the market with a surplus to be got rid of for what it would bring.

The recovery administration therefore saw its first job was to stop overproduction. The immediate application of the ban on "hot" oil transportation followed although East Texas is again overproducing, encouraged possibly by the modification on commingled storage oil produced prior to July 11.

This, however, is a temporary condition. The establishment of a Federal agency to estimate petroleum needs and recommend production quotas will furnish a framework for the industry's operations. The allocation of the needed production among the several states by the Federal agency is to be backed by the power of the President to regulate shipments out of a state which exceeds its production quota.

This proposal rests upon the promised co-operation of the oil producing states with the recovery administration. There can be no question that popular support of the President will require fulfillment of that pledge even though it is necessary to reduce production 500,000 barrels a day to bring it within market requirements.

It is to be observed also that the code contemplates prevention of overproduction of petroleum products as well as of crude. The elimination of overproduction is thus made the foundation for the entire code, as it rightly must be, because so long as excess production continued it would be impossible to stabilize prices where they could sustain the new employment structure.

On the question of commodity prices the President is understood to have in mind a return to the standard of 1926. A comparison of average gasoline prices in fifty representative cities given in the Semi-Annual Number of The Oil and Gas Journal of July 27 will show what this means.

On July 1 the average service station price of gasoline in these 50 cities was 13 cents a gallon, exclusive of tax. If the price was increased 3 cents it would be up only to the level of what the consumer paid in 1930, and 1½ or 2 cents under the prices in 1928 and 1929, and 5 cents under the price paid in 1926 to which level the President wishes commodities to return.

At that it would still be, as it has been since 1913, the cheapest of all commodities.

That is, so far as what the oil industry charges its customers. But the gasoline business has differed from others in having had its customers saddled with a tax above the industry's price for its product.

The average gasoline tax, state and federal, is now 5½ cents a gallon, or about one-third of the price paid by the consumer. This is approximately 3 cents more than the average gasoline tax in 1926 so that while the oil industry would be entitled, along with other commodities, to return to 1926 prices its customers would find they were paying 3 cents more because of the increased taxes.

It would certainly not be fair to ask the oil industry to limit its chance of recovery, compared to other businesses, by returning 3 cents less than 1926 prices.

If commodity prices are to be restored to the 1926 level to reflate the dollar why should there be discrimination against the gasoline dollar simply because state and Federal legislators have increased the tax?

This is a matter not between the oil industry and its customers but between the public and the tax levying bodies. If we are going back to the 1926 mark let all go together and not handicap the oil man with a tax differential.

The motoring public should get this straight so there will be no misunderstanding. This national recovery means just that, national, not one industry at the expense of another or all at the expense of one. The remedy lies with the motor owner who should apply to those who increased the tax on gasoline to reduce it.

The original excuse that gasoline taxes were needed to improve the roads is being minimized by the seizure of gasoline revenues for a variety of other purposes that have no special benefit to the car owner more than any other taxpayer.

The amazing growth of the gasoline tax has not been noticed by the consumer because the industry, through overproduction, resulting in unfair competition, was continually cutting prices and thus offsetting the tax.

Had the oil industry maintained a living price for its gasoline through all those years, the public would not have submitted so tamely to the continual increasing of the motor fuel tax. Now that there is a chance for a living price for gasoline the public will feel the tax burden and probably do something about it. If it goes back to 1926 commodity prices it should insist on going back to 1926 gasoline taxes.

That, indeed, is one item that might have been included in the oil code, a recommendation for a uniform federal tax on motor fuel, to be kept at a maximum of 2 cents, and allocated to the states and the Federal government as needed. Any effective plan for recovery in the oil business would recognize the handicap.

These are the two outstanding facts in oil industry recovery: Stopping overproduction and getting better prices. Restriction of production and reduction of the gasoline tax are two basic conditions essential to the stabilization that is necessary to increase purchasing power. Overproduction can prevent better prices and overtaxation can check them if started unless the public is aroused to demand the remedy.

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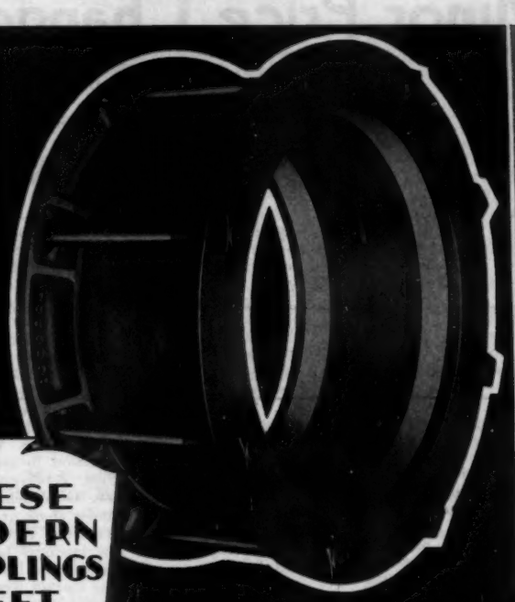

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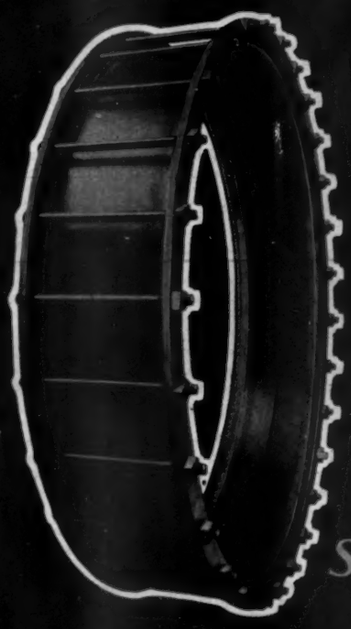

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Oklahoma Refiners Advance Bright Stocks With Minor Price Changes in Other Products

By C. O. WILLSON

Another week of marking time in Oklahoma refinery markets apparently was in prospect when the final code of practices for the petroleum industry failed to materialize as expected on Tuesday. The trade generally had been anticipating the announcement of a code from Washington on Monday which would be effective immediately and serve as a guide for future operations. The further postponement of final action on the part of the Government was a distinct disappointment especially to the sellers.

The uncertainty regarding the government action over the past several weeks according to one authority has had a bearish influence on refinery markets in the Mid-Continent and largely accounts for the decline in prices for gasoline and several other products. If the matter of a code and government supervision had not developed in May it is claimed the industry itself backed by a strong statistical situation in the refining end could have placed its own house in order at least to the extent of preventing a steady decline in gasoline prices during the period of maximum gasoline consumption. This view and others of a similar tone have no merit now and the marketing trade the first of the week were reconciled to the prospect of "waiting another week to see what happens."

As long as this condition of uncertainty exists the refined markets generally in the Mid-Continent and Middle West will no doubt continue to have a weak undertone. Over the past week spot trading in all products was slow and in the case of gasoline additional price concessions on all grades were obtainable. The weakness in kerosene and distillates continued without any price changes on the downward side. The only exception to the general price trend was firmness in wax and natural gasolines and a 1-cent advance in bright stocks. The bright stock advance became effective in Oklahoma on Monday and follows similar advances recently in Pennsylvania.

Refined Market Barometer

Reports from several refining areas over the past week indicated that uncertainty regarding the adoption of a code of practices for the petroleum industry was bringing weakness in the gasoline market. Spot buyers were curtailing their purchases as much as possible and refiners in some cases were forced to give price concession to secure orders. California was an exception to the rule. In that territory prices have been advanced to higher levels. Natural gasolines were stronger both in California and the Mid-Continent. In northern and eastern states a more active demand for distillate was reported. Bright stocks prices were advanced both for export and domestic movement. Heavy fuels and gas oils were steady. Good demand for paraffin wax.

Mid-Continent—Refinery gasoline quotations generally lower. Natural gasoline firm. Kerosene and distillate sluggish. Heavy fuels and gas oils steady. Bright stock prices higher. Wax firm.

East Coast—Improvement in refinery movement of furnace oils. Gasoline market marking time. Bunker fuels firm with improved demand. Cylinder stock prices higher. Good demand for wax.

Pennsylvania—Cylinder stock prices higher. Gasoline and kerosene unchanged with good movement of former. Wax prices fractionally higher.

Chicago—Little new business in market and general price trends in gasoline, kerosenes and distillates lower. Industrial fuels and gas oils firm.

Gulf Coast—Gasoline market weak and prices lower. Price cutting over long period brings general concessions in pale and red neutral quotations. Fuels firm.

California—Gasoline prices higher. Improved marine demand for fuel oils.

In regard to all codes of practices that have been proposed by several groups in the oil business and that of the Government announced Monday night and published in full in this issue, representative executives and salesmanagers in the Mid-Continent are in agreement that no plan of placing the industry on a profitable basis including 100 per cent participation in the NRA will be successful unless backed by a sound crude oil situation. This point is repeatedly emphasized in all discussions of the proposed code showing clearly that in the opinion of refiners and distributors all remedies will prove futile unless they take into consideration the overproduction situation including the various angles of the bootleg evil.

Gasoline and Naphtha

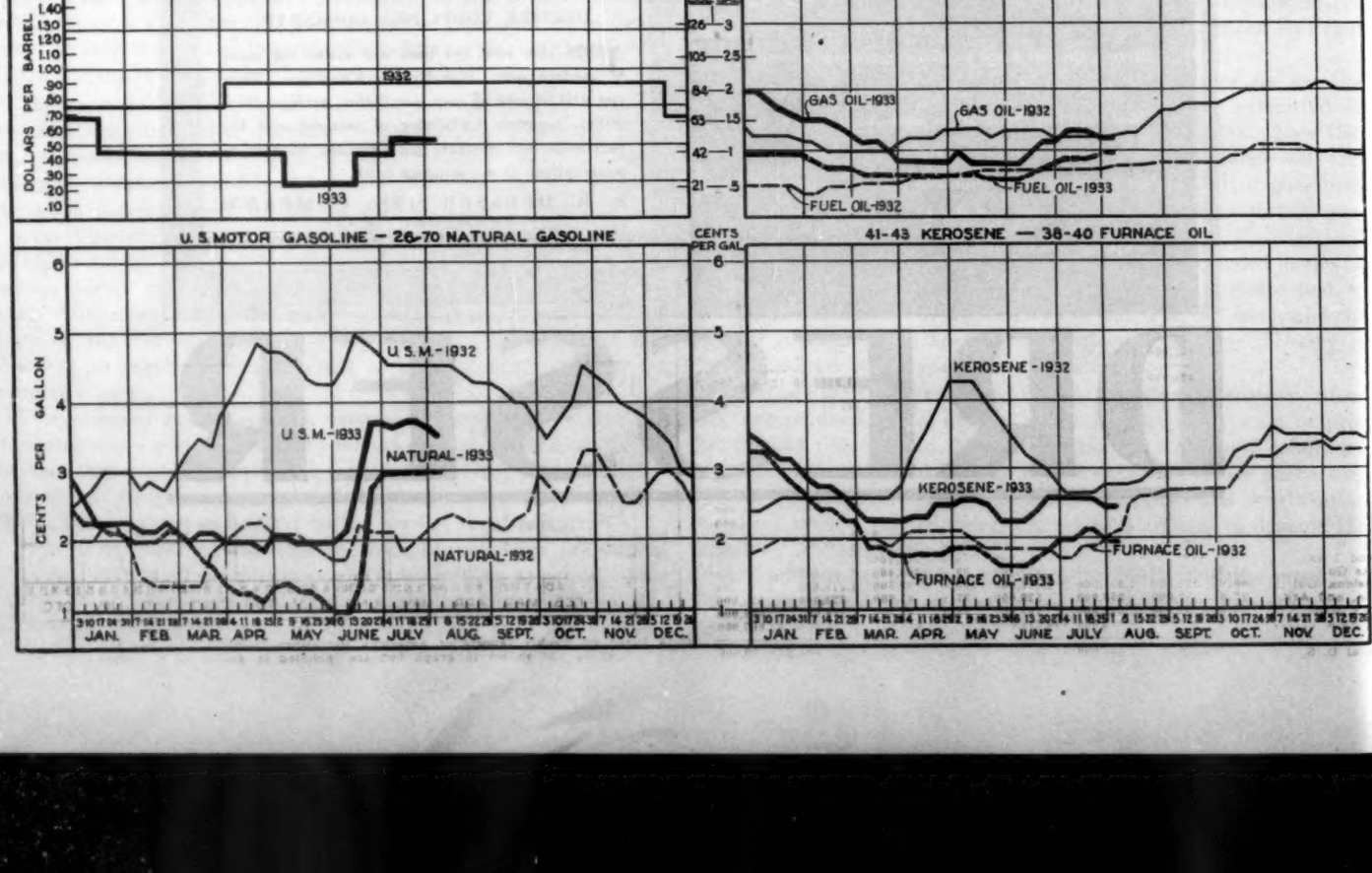
As July was brought to a close, spot trading in refinery gasolines was largely at a standstill. Several refiners in Oklahoma and other Mid-Continent areas had material on hand but they were hopeful that a new code to be effective soon would result in a better market tone and they would be able to obtain higher rather than lower prices for their August shipments. Buyers at the same time did not appear concerned as to the possibilities of higher prices and spot buyers in several cases were seeking prices under those of late July for August shipment.

With some sources of supply shut off due to shutdowns in East Texas the market on third grade U. S. Motor gasoline was being maintained fairly well at a low of 3½ cents with 3¼ cents the low on resale material. The latter was coming largely from East Texas refiners and included shipments in transit. Two times during the week it appeared that the gasoline market might firm or advance due to the removal of excess material from the market. After a day or two, however, additional gasoline made its appearance and it continued to be a buyers' market.

There is considerable confusion regarding the market for the middle and premium octane grades. Offers from small refiners were reported in which the middle octane quotation was 4 cents or less and the 65 or higher octane (premium grade) was 4½ cents in sales direct to the trade. It was claimed by some who are quoting the middle octane at a low of 4¾ cents and the high octane at 5¼ cents that this gasoline either did not possess the octane rating claimed based on the new C.F.R. method of testing or that is was not stable in color.

In the absence of any neutral testing laboratory it is impossible to settle these disputes as to octane ratings which are increasing in importance. In regard to color, buyers are not so much concerned in regard to this specification as they have been in the past. Many independent

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)



jobbers are coloring their regular grade gasoline or asking that the refiner do it. This is done to meet the competition of a large number of major and semimajor distributors who are now selling a colored Q brand of ethylized gasoline. This gasoline in most cases is colored bronze or yellow, although the new product introduced by the Standard of Indiana last week is wine colored. Several refiners in East Texas and other areas can obtain a better octane rating by not treating to water white color. Where there is no objectionable gum or sulphur an increasing number of buyers do not object to this color for the reason that coloring is added before being offered to retail customers. It is reported that some of the Q brand licensees have been buyers of this gasoline which has been available around 4 cents per gallon over the past week.

It is also known in the trade that some of the larger refiners are selling middle and high octane gasoline on a tank car basis. These are largely inter-refinery transactions but are having their effect on the spot market. As explained in these columns last week this situation partially reflects the fact that the availability of tetraethyl fluid in increasing antiknock rating is tending to lower costs of production at refineries. The reduction in the spread between regular grade gasoline and the premium Ethyl Gasoline from 3 to 2 cents per gallon effective the past week is another angle of this development which is highly significant to both the manufacturing and marketing branches of the oil industry.

Natural Gasoline

Improvement in buying materially improved the natural gasoline situation the last few days of July. Most of this buying was for August shipment and in the case of several manufacturers their entire output has been contracted over the next 30 days. The contracts usually are based on published prices on date of shipment. The buying included a number of Mid-Continent refiners as well as additional shipments to the Gulf Coast. Among the heavy buyers for August in the Mid-Continent area were at least three refiners who are interested in a gasoline pipe line transporting gasoline from Oklahoma and Kansas refineries to Middle West consuming points.

August is generally the month in which there are the greatest withdrawals from gasoline storage at refineries. In many cases the stored gasoline will require natural gasoline in order to secure a product meeting the present requirements in regard to volatility and gravity. What happens to the natural gasoline market later in August will of course be largely dependent on the trend in the refinery market. Manufacturers are confident that they can duplicate in their product any price recovery that may develop in the refinery gasoline market.

Prices for the 26-70 and 18-55 grades of natural gasoline are the same as last week. The lower vapor pressure grades are slightly higher.

Kerosene and Distillate

Kerosene is being quoted over a wide price range. Sales as low as 2⅛ cents (basis Group 3) for what was claimed to be 41-43 kerosene were reported and at the same time other refiners are quoting up to 3¼ cents for the same grade. The market to the trade in this issue continues to be 2½ to 2¾ cents for the 41-43 specification material. Buying is slow.

The demand for distillate has not been as active as expected. Most buyers are not inclined to purchase for storage purposes at this time although the consuming season starts in another month.

Several contracts are reported closed for the consuming season based on published prices. Spot prices over the past week ranged from 1¾ cents for straw material to 2⅛ cents for prime white.

Fuel Oils and Gas Oils

Fuel oil and gas oil prices are unchanged. One refiner who ordinarily has several grades, reported many inquiries for zero fuel oil of varying gravities and also industrial gas oils. One sale of gas oil cracking stock for shipment inside the state at 1⅜ cents was reported. U.G.I. gas oil continues to be quoted at a low of 1¼ cents for interstate shipment. Industrial fuels of low cold test and gravity are available at a low of 37½ cents.

Lubricants

With the 1-cent advance 150-160 zero bright stock is now quoted in Oklahoma exclusive of tax at 21¾ cents. Similar advances were made in other grades. No changes were made in neutral oil prices. A general advance in finished motor oil prices compounded at refineries and separate plants is predicted for the immediate future. It is said that these advances are to be followed with higher retail prices. Paraffin wax continues scarce for immediate shipment and prices are firm.

The Oil Man's Calendar

August

3-4 — Dallas, Tex., manufacturers and jobbers of oil field equipment to discuss formation of association and code for operation under NRA, Baker Hotel.

23-26—Atlantic City, N. J., The American Society of Mechanical Engineers, Sixth National Oil and Gas Power Meeting.

28-Sept. 4—Chicago, Society of Automotive Engineers.

September

1-4—Chicago, Society of Automotive Engineers, aeronautic meeting.

5-7 — Indianapolis, Ind., North American Gasoline Tax Conference, Severin Hotel.

10-15—Chicago, American Chemical Society, Stevens Hotel.

20-22 — Atlantic City, N. J., National Petroleum Association, thirty-first annual meeting, Traymore Hotel.

25—Chicago, Natural Gas Department, American Gas Association.

25-29—Chicago, International gas conference and fifteenth annual convention, American Gas Association, Stevens Hotel.

27-28—Akron, Ohio, Ohio Petroleum Marketers Association, Hotel Mayflower.

October

Louisville, Ky., Kentucky Petroleum Marketers Association.

24-26—Chicago, Ill., fourteenth annual meeting, American Petroleum Institute.

Kansas City, Mo., Big Four State Independent Oil Jobbers Association.

Tulsa, Mid-Continent Oil and Gas Association.

November

Los Angeles, Calif., American Association Petroleum Geologists, Pacific Section.

December

4 — New York, fourteenth Exposition of Chemical Industries, Grand Central Palace.

Great Falls, Mont., Rocky Mountain Oil and Gas Association.

Roanoke, Va., American Institute of Chemical Engineers.

New York, American Society of Mechanical Engineers, National Aeronautic Meeting.

1934

January

18—Oklahoma City, Okla., Okla-Petroleum Marketers Association.

25-26—Sioux Falls, S. Dak., South Dakota Independent Oil Dealers Association.

February

6-7—Des Moines, Lowa, Iowa Petroleum Association.

13-15—Columbus, Ohio, Ohio Petroleum Marketers Association.

Wild Well in East Texas Holds Up Train Two Hours

KILGORE, Tex., July 31.—The westbound Sunshine Special, crack train of the Texas & Pacific Railroad, was delayed near here for nearly two hours Sunday when an oil well beside the railroad right of way went wild as railroad commission workers prepared to make a potential test of the producer. The well was No. 2 Brown Eagle in Gladewater Township, about 12 feet from the rails.

As the well went out of control it began to flow oil at the rate of 500 bbls. an hour. Officials estimated the loss to be about 1,250 bbls. The west-bound train was delayed for 1 hour and 50 minutes.

A cementing crew was rushed from here to shut off the wild flow of oil and to prevent another Etex oil field fire hazard.

OIL TOWNS ARE THRIVING

McPHERSON, Kans., July 31.—McPherson is not the only city in Kansas where there is a demand for housing facilities. New oil development in central and western Kansas is bringing in many people from Oklahoma and Texas and the housing problem is becoming serious. In the McPherson district, such towns as Canton, Galva, Burrton and Buhler are being filled with oil men who have come from other areas to work in the rapidly developing McPherson sector of the north Mid-Continent area.

American Petroleum Institute Weekly Refinery Statistics

Figures below reported for week by American Petroleum Institute. (1) Per cent refinery capacity represented. (2) Daily average crude runs to stills. (3) Total motor fuel stocks. (4) Gas oil and fuel oil stocks. All figures in 42-gallon barrels.

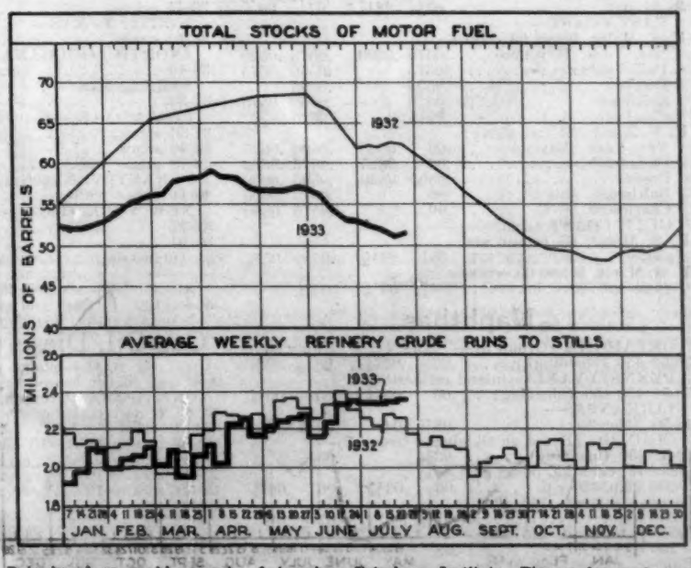
Week Ending July 29, 1933, Compared to Week Ago

	Week ending July 29, 1933				Week ending July 22, 1933			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	497,000	15,158,000	7,871,000	100.0	477,000	14,208,000	7,788,000
Appalachian	92.6	104,000	2,009,000	806,000	92.6	104,000	1,967,000	880,000
Ind., Ill., Ky.	97.3	354,000	7,453,000	4,645,000	97.3	348,000	7,300,000	4,523,000
Okla., Kans., Mo.	82.1	269,000	4,640,000	3,833,000	82.1	281,000	4,510,000	3,658,000
Inland Texas	58.7	100,000	1,475,000	1,922,000	58.7	101,000	1,380,000	1,899,000
Texas Gulf	98.0	428,000	5,357,000	6,977,000	98.0	427,000	6,090,000	7,042,000
Louisiana Gulf	100.0	121,000	1,337,000	1,885,000	100.0	113,000	1,281,000	1,847,000
N. La. and Ark.	92.6	52,000	268,000	539,000	92.6	43,000	261,000	511,000
Rocky Mtn.	78.8	37,000	1,042,000	765,000	78.8	43,000	1,115,000	776,000
California	96.9	462,000	14,083,000	100,218,000	96.9	450,000	13,824,000	99,563,000
Total U. S.	92.2	2,424,000	52,722,000	129,461,000	92.2	2,387,000	51,936,000	128,487,000

Total motor fuel stocks, Bureau of Mines basis, 54,720,000 bbls.

Week Ending July 29, 1933, Compared to Year Ago.

	Week ending July 29, 1933				Week ending July 30, 1932			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	497,000	15,158,000	7,871,000	100.0	450,000	19,495,000	8,107,000
Appalachian	92.6	104,000	2,009,000	806,000	91.3	93,000	2,268,000	1,174,000
Ind., Ill., Ky.	97.3	354,000	7,453,000	4,645,000	98.9	388,400	8,045,000	4,363,000
Okla., Kans., Mo.	82.1	269,000	4,640,000	3,833,000	89.6	295,300	5,257,000	3,490,000
Inland Texas	58.7	100,000	1,475,000	1,922,000	76.5	102,700	1,603,000	2,312,000
Texas Gulf	98.0	428,000	5,357,000	6,977,000	99.5	408,400	5,153,000	8,441,000
Louisiana Gulf	100.0	121,000	1,337,000	1,885,000	100.0	99,300	1,710,000	4,697,000
N. La. and Ark.	92.6	52,000	268,000	539,000	97.9	41,600	323,000	678,000
Rocky Mtn.	78.8	37,000	1,042,000	765,000	82.5	41,700	1,344,000	821,000
California	96.9	462,000	14,083,000	100,218,000	96.7	444,600	15,654,000	98,807,000
Total U. S.	92.2	2,424,000	52,722,000	129,461,000	95.1	2,176,300	61,172,000	132,600,000



Data based on weekly reports of American Petroleum Institute. Figures for week just ended not shown in graph but are included in accompanying table

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

EXCLUSIVE OF TAXES

The following quotations are exclusive of the Federal excise taxes of 1½ cents a gallon on gasoline and 4 cents on lubricating oils, which became effective June 17, 1933.

Refinery Gasolines

OKLAHOMA (Group 3)—	Aug. 1		July 25	
*U. S. Motor grades:				
Regular	.04¼	.04½	.04⅜	.04⅝
Premium	.04⅝	.05	.04⅝	.05
Third grade	.03½	.04	.03⅝	.04
60-62 400 grades:				
Regular	.04⅜	.04¾	.04½	.04¾
Premium	.04⅝	.05	.04¾	.05
Third grade	.03⅝	.04	.03¾	.04
64-66 390	.04¼	.04½	.04½	
64-66 375	.04⅜	.04¾	.04½	.05
68-70 350	.04½	.05	.04⅝	.05
NORTH TEXAS—				
U. S. Motor grades:				
Regular	.04¼	.04½	.04¼	.04½
Premium	.04⅝	.05	.04⅝	.05
Third grade	.03½	.04	.03½	.03¾
60-62 400	.03⅝	.04	.03¾	.04
64-66 390	.03⅞	.04	.03⅞	.04
64-66 375	.04⅛	.04¼	.04¼	.04½
64-66 360	.04⅜	.05	.04⅝	.04½
†NORTH LOUISIANA—				
U. S. Motor grades:				
Regular	.04½	.04¾	.04½	.04¾
Premium	.04¾	.05	.04¾	.05
Third grade	.04	.04¼	.04¼	.04½
60-62 400	.04¼	.04½	.04½	.04¾
†ARKANSAS—				
U. S. Motor grades:				
Regular	.04½	.04¾	.04½	.04¾
Premium	.04¾	.05	.04¾	.05
Third grade	.04	.04¼	.04¼	.04½
CHICAGO (Based on Oklahoma Group 3)—				
U. S. Motor grades:				
Regular	.04¼	.04½	.04¾	.04½
Premium	.04½	.04¾	.04½	.04⅞
Third grade	.03½	.04	.03½	.04
60-62 400	.03¾	.04	.03¾	.04
64-66 375	.04	.04¼	.04	.04¼
68-70 360	.04¼	.04½	.04¼	.04½
Aviation fighting grade	.04¾	.05	.04¾	.05

*Octane Ratings—The following octane ratings apply to the three grades of U. S. Motor gasoline: Regular 60-64 octane number; premium, 65 and above octane number; third grade, 59 and below octane number. Octane ratings determined by C.F.R. Motor Method.

†For Arkansas, Louisiana and Mississippi delivery.

PENNSYLVANIA (inland refineries)—				
U. S. Motor	.05½	.05⅝	.05⅝	.05½
60-62 400	.05⅝	.05¾	.05½	.05¾
64-66 375	.05⅞	.06	.05⅞	.06
68-70 350	.06¼		.06¼	
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.06½	.07¾	.06¼	.07½
58-60 400	.07¼	.08¼	.07	.08
EAST COAST—				
U. S. Motor, below 65 octane:				
New York (Bayonne)	.0575	.0590	.0575	.0590
Philadelphia	.0575		.0550	.0575
Boston	.0595		.0595	
Baltimore	.0575		.0550	.0575
Charleston, S. C.	.0575		.0525	
U. S. Motor, 65 and above:				
New York (Bayonne)	.06	.0625	.0600	.0625
Philadelphia	.06	.0625	.0575	.0600
Boston	.0595	.0630	.0595	.0630
Baltimore, Md.	.06		.0575	.0600
Charleston, S. C.	.06		.0575	.0600
GULF COAST (domestic)—				
U. S. Motor, 65 octane and above	.05¼	.05½	.05⅝	.05¾
U. S. Motor, below 65 octane number	.04⅞	.05⅛	.05¼	

Naphthas

OKLAHOMA (Group 3)—	Aug. 1		July 25	
50-52 450 (blending)	.03½	.03¾	.03½	.03¾
PENNSYLVANIA (inland refineries)—				
50-54 430-450 (blending)	.05	.05¼	.05	.05¼
†ARKANSAS—				
48-50 (blending)	.03⅞	.04	.03⅞	.04
CHICAGO (Based on Oklahoma Group 3)—				
50-52 450 (blending)	.03⅞		.03⅞	
Cleaners' naphtha, 56-58 gr., 200 i.b.p.-320 e.p.	.06	.06¼	.06	.06¼
Lacquer diluent, 180 i.b.p.-250 e.p.	.07½	.08	.07½	.08
Lacquer diluent, 140 i.b.p.-200 e.p.	.08	.08½	.08	.08½
Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p.	.05¾	.06	.05¾	.06
Stoddard solvent, 300 i.b.p.-410 e.p., over 83° flash	.05½	.05¾	.05½	.05¾
Pet. thinner, 290-300 i.b.p.-415 e.p., over 83° flash	.05	.05¼	.05	.05¼
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p.	.05¾	.06	.05¾	.06
Petroleum spirits	.04¾	.05	.04¾	.05

Natural Gasolines

OKLAHOMA (Group 3)—	Aug. 1		July 25	
Grade 18-55	.03½		.03½	
Grade 26-70	.03		.03	
Grade 30-70	.02⅞		.02⅞	
*Low pressure grades:				
15 lb. v.p. (max.)	.03¾	.04	.03½	.03¾
11 lb. v.p. (max.)	.04¼	.04½	.04	.04¼
NORTH TEXAS—				
Grade 18-55	.03½		.03½	
Grade 26-70	.03		.03	
Grade 30-70	.02⅞		.02⅞	
*Low pressure grades:				
15 lb. v.p. (max.)	.03¾	.04	.03½	.03¾
11 lb. v.p. (max.)	.04¼	.04½	.04	.04¼
NORTH LOUISIANA—				
Grade 26-70	.03¼	.03½	.03¼	.03½
CALIFORNIA—				
75-78 375	.05¼	.06½	.05¼	.06½

Kerosenes

(All kerosenes water white)

OKLAHOMA (Group 3)—	Aug. 1		July 25	
41-43	.02½	.02¾	.02½	.02¾
42-44	.02⅝	.02⅞	.02⅝	.02⅞
NORTH TEXAS—				
40-41	.02¾	.02½	.02¾	.02½
41-43	.02½	.02⅝	.02½	.02⅝
†NORTH LOUISIANA—				
41-43	.02⅞	.03	.02⅞	.03
42-44	.03	.03¼	.03	.03¼
†ARKANSAS—				
41-43	.02⅞	.03	.02⅞	.03
PENNSYLVANIA (inland refineries)—				
45	.04¼	.04⅜	.04¼	.04⅜
46	.04¼	.04½	.04¼	.04½
47	.04½	.04¾	.04½	.04¾
CHICAGO (Based on Oklahoma Group 3)—				
41-43	.02½	.02¾	.02½	.02¾
42-44	.02⅝	.02¾	.02⅝	.02¾
*CALIFORNIA—				
38-40 high burning test	.04	.04½	.04	.04½
NEW YORK (Bayonne, N. J.)—				
41-43	.05	.05¼	.05	.05¼
GULF COAST (domestic)—				
41-43 water white	.04		.04	.04¼

*For Pacific Coast consumption.

†For Arkansas, Louisiana and Mississippi delivery.

Furnace Oils and Tractor Fuels

OKLAHOMA (Group 3)—	Aug. 1		July 25	
32-36 straw	.02	.02½	.02	.02½
36-38 straw	.01¾	.02	.01¾	.02
38-40 straw	.01⅞	.02	.02	.02½
39-41 prime	.02⅛	.02¼	.02⅛	.02¼
NORTH TEXAS—				
38-40 straw	.01⅞	.02	.02	.02⅛
†NORTH LOUISIANA—				
36-40	.02½	.02¾	.02½	.02¾
†ARKANSAS—				
32-36	.02½		.02½	
CHICAGO (Based on Oklahoma Group 3)—				
32-36 straw	.01⅞	.02	.02	.02½
38-40 straw	.02	.02½	.02⅛	.02¼
38-40 prime white	.02⅛	.02¼	.02⅛	.02¼
PENNSYLVANIA (inland refineries)—				
40-41 prime white	.03¾	.04	.03⅜	.03¾
NEW YORK (Bayonne, N. J.)—				
32-36	.04		.04	
36-40	.05		.05	
21 (industrial)	.03½		.03½	

Above prices are for distillate oils of zero cold test under 190° F. flash and good odor.

†For Arkansas, Louisiana and Mississippi delivery.

Gas Oil, Diesel Oil and Fuel Oil

Gas oil (G.O.) quoted per gallon basis; Diesel oil and fuel oil per barrel.

OKLAHOMA (Group 3)—	Aug. 1		July 25	
32-36 (G.O.) cracking stock	.01½	.01⅜	.01¼	.01⅜
U.G.I. (G.O.)	.01¼	.01⅜	.01¼	.01⅜
32-36, zero to 15 (G.O.) high flash	.01⅝	.01¾	.01⅝	.01¾
28-30, zero to 10	.70	.75	.70	.75
26-30, zero to 10	.65	.70	.65	.70
24-26	.50	.55	.50	.55
20-22	.45	.50	.45	.50
Below 16	.40	.45	.40	.45
NORTH TEXAS—				
32-36 (G.O.) industrial	.01¼		.01¼	
22-26	.45	.50	.45	.50
Below 20	.40	.45	.40	.45
†NORTH LOUISIANA—				
32-36 (G.O.) zero	.02½		.02½	
14-16	.35	.40	.35	.40
†ARKANSAS—				
30-32 (G.O.) zero	.02½		.02½	
14-16	.35		.35	
CHICAGO (Based on Oklahoma Group 3)—				
32-36 (G.O.) industrial	.01¼	.01⅜	.01¼	.01⅜
28-30 (zero)	.70	.80	.70	.80
26-28 (zero)	.65	.75	.65	.75
22-26 (zero)	.60	.65	.60	.65
18-22 (zero)	.55	.60	.55	.60
Below 18	.40	.45	.40	.45

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel less in all areas than shown in above tables.

†For Arkansas, Louisiana and Mississippi delivery.

PENNSYLVANIA (inland refineries)—				
36-40	.03⅜		.03⅜	
CALIFORNIA—				
30-34 (G.O.) per bbl.	.80	.90	.80	.90
27 plus Diesel	.80	.90	.80	.90
15-19 bunker (at tidewater)	.50	.60	.50	.60
15-19 (cargo lots)	.45	.55	.45	.55
15-19 (tank cars)	.42½	.50	.42½	.50
GULF COAST—				
28-30 (G.O.)	.03		.03	
28-30 Diesel	1.50		1.50	
Bunker C (bulk cargoes)	.60		.60	
Bunker C (bunkers)	.70		.70	
NEW YORK (Bayonne, N. J.)—				
28 plus (G.O.)	.04		.04	
*28-30 Diesel	1.75		1.75	
26-30 Diesel (tank cars)	.04		.04	
‡Bunker C	.80	.85	.80	.85

*Lighterage 6½ cents per barrel.

†Lighterage 5 cents per barrel.

‡Contract price at New York Harbor to ocean-going steamships only.

Petroleum Coke*

Prices per ton f.o.b. refineries in Chicago area.

Breeze (screenings)	4.75	4.75
Still runs	5.75	5.75
Lump and egg	6.75	6.75

*Refineries will absorb freight to 80 cents a ton.

Neutral Oils

(Viscosity at 100° F. and color)

OKLAHOMA (Group 3)—	Aug. 1		July 25	
Zero to 10 Cold Test:				
150-3	.07¼	.07½	.07¼	.07½
180-3	.08½	.08¾	.08½	.08¾
180-4	.08¼	.08½	.08¼	.08½
200-3	.09	.09¼	.09	.09¼
200-4	.08¾	.09	.08¾	.09
240-3	.11	.11¼	.11	.11¼
240-4	.10¾	.11	.10¾	.11
280-3	.12	.12¼	.12	.12¼
280-4	.11½	.11¾	.11½	.11¾
300-3½	.12¾	.13	.12¾	.13
350-3½	.13¾	.14	.13¾	.14
400-4	.14¾	.15	.14¾	.15
500-4½	.15¾	.16	.15¾	.16
100-2 paraffin oil	.05¼	.05½	.05¼	.05½
15-30 Cold Test:				
200-3	.08¼	.08½	.08¼	.08½
200-4	.08	.08¼	.08	.08¼
240-3	.10¼	.10½	.10¼	.10½
240-4	.10	.10¼	.10	.10¼
280-3	.11¼	.11½	.11¼	.11½
280-4	.11	.11¼	.11	.11¼
PENNSYLVANIA—				
150 vis., No. 3, 400-405:				
Zero pour test	.17¾	.18¼	.17¾	.18¼
10 pour test	.17¼	.17¾	.17¼	.17¾
15 pour test	.15¾	.16	.15¾	.16
25 pour test	.15	.15¼	.15	.15¼
180 vis., No. 3, 25 pour test	.16½	.16¾	.16½	.16¾
200 vis., No. 3:				
Zero pour test	.21¼	.21½	.20¾	.21
10 pour test	.20¼	.20½	.19¾	.20
15 pour test	.19¼	.19½	.18¾	.19
25 pour test	.18½	.18¾	.18	.18¼
GULF COAST—				
Pale Oils:				
100-2-2½	.04½		.05½	
200-3	.05¼	.05½	.06¼	.06½
300-3	.06¼	.06½	.07¾	.08
500-3½	.08½	.08¾	.09¾	.10
750-3½	.09¼	.09¾	.10¾	.11
1,200-3½	.10	.10½	.12¾	.13
2,000-4	.11	.11¼	.14¾	.15
Red Oils:				
200-5-6	.04½		.05½	
300-5-6	.05¼	.05½	.06¼	.06½
500-5-6	.07¼	.07½	.07¾	.08

750	.08¼	.08½	.12¾	.13
1,200-5-6	.09	.09½	.12¾	.13
2,000-6 plus	.10	.10¼	.14¾	.15
CALIFORNIA—				
Pale Oils:				
100-2½-3	.09	.09½	.09	.09½
200-2½-3	.09½	.10	.09½	.10
300-3-3½	.10½	.11	.10½	.11
350-3-4	.11	.11¼	.11	.11¼
400-3-4	.11½	.11¾	.11½	.11¾
450-3-4	.11¾	.12	.11¾	.12
550-3-4	.12	.12½	.12	.12½
Red Oils:				
200-4-5	.09½	.10	.09½	.10
300-5-6	.10½	.11	.10½	.11
350-5-6	.11	.11½	.11	.11½
400-5-6	.11½	.11¾	.11½	.11¾
450-5-6	.11¾	.12	.11¾	.12
500-5-6	.12	.12¼	.12	.12¼
600-5-6½	.12¼	.12½	.12¼	.12½
700-6½ plus	.12½	.12¾	.12½	.12¾
750-6½ plus	.12¾	.13	.12¾	.13
900-6½ plus	.13	.14½	.13	.14½

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	Aug. 1		July 25	
630 light green	.06¾	.07¾	.06¾	.07¾
600 light green S.R.	.06¼	.07¼	.06¼	.07¼
600 dark green S.R.	.04¾	.05¾	.04¾	.05¾
Bright Stocks:				
190-200 D	.23½	.24½	.22½	.23½
150-160 D, 0-10	.21¾		.20¾	
150-160 D, 10-25	.21¼		.20¼	
150-160 D, 25-40	.20¾		.19¾	
150-160 E	.19¾		.18¾	
PENNSYLVANIA—				
600 S.R.	.14¼		.14	.14¼
650 S.R.	.16½		.16¼	.16½
600 Pennsylvania flash	.17½		.17¼	.17½
650 D filtered	.22½		.22¼	.22½
600 E filtered	.18		.17¾	.18
Pennsylvania Grade bright stock:				
No. 8 color, 145-50 vis., at 210; 540-550 flash:				
10 pour test	.27½		.27	.27½
15 pour test	.25½		.25	.25½
25 pour test	.24½		.24	.24½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	Aug. 1		July 25	
124-126 white crude scale	.02⅞	.03	.02¾	.03
PENNSYLVANIA—				
122-124	.0310	.03125	.03	.0305
124-126	.0315	.0330	.03125	.0315
NEW YORK HARBOR—				
120-122 (a.m.p. basis)	.0325		.0325	
125-127	.0355		.0355	
130-132	.0410		.0410	
133-135	.0475		.0475	
135-137	.0500		.0500	
Petrolatum in barrels in carload lots:				
Dark green	.01⅞		.01⅞	
Amber	.02		.02	
Extra amber	.02⅝		.02⅜	
Lily white	.05½		.05½	
Snow white	.0660		.06½	
Cream	.0450		.04½	
CHICAGO (f.o.b. switching district)*—				
122-124	.0365	.0375	.0365	.0375
125-127	.0390	.0400	.0390	.0400
127-129	.0405	.0415	.0405	.0415
130-132	.0465	.0475	.0465	.0475
132-134	.0490	.05	.0490	.0500

*Cents per pound on carlot orders in burlap bags of 225 lbs. approx.
Add 3° F. for a.m.p.

Export Prices

GASOLINE

GULF COAST—	Aug. 1	July 25
U. S. Motor	.04½	.04½
60-62 400	.04¾	.04¾
61-63 390	.04¾	.04¾
64-66 375	.04¾ .05	.04¾ .05
LOS ANGELES, CALIF.—		
U. S. Motor, 53-55 437 e.p.	.04 .04½	.04 .04½
U. S. Motor, 65 octane	.04½ .04¾	.04½ .04¾
U. S. Motor, 67 octane	.05	.05
U. S. Motor, 69 octane	.05¼	.05¼
58-60 400 endpoint gasoline	.04½ .05	.04½ .05

KEROSENE

GULF COAST—		
41-43 prime white	.04 .04¼	.04 .04¼
41 water white	.04¼ .04½	.04¼ .04½
LOS ANGELES, CALIF.—		
41-43 water white	.03¾ .04¼	.03¾ .04¼

LUBRICANTS

NEW YORK (f.a.s. in bbls.)—	
600 Warren E	.24 .23
600 S.R. unfiltered	.20¼ .19¼
650 S.R. unfiltered	.22½ .21½
600 flash S.R.	.23½ .22½
630 flash S.R.	.28½ .27½
Bright stock, No. 8 color	.30 .29
Bright stock, No. 6½ color dil.	.29½ .28½

NEUTRALS

NEW YORK—Pale Engine Oil, Bulk (vis. at 100)—	
230-3¾	.10¾ .10¾
180-3¼	.10½ .10½
100-2¼	.06 .06
Red Engine Oil, Bulk (vis. at 100):	
300-6½	.10½ .10½
250-6	.09½ .09½
200-6	.08¾ .08¾

PARAFFIN WAX (Fully Refined)

NEW YORK (prices per pound)—		
123-125 a.m.p.	.0325	.0325
125-127 a.m.p.	.0340	.0340
130-132 a.m.p.	.0390	.0390
133-135 a.m.p.	.0430	.0430
135-137 a.m.p.	.0460	.0460

Crude Oil Prices

Oklahoma, Kansas, North and East Central Texas

East Texas (see note) .....$.50 and $.75
Stratman, Kansas (July 17, 1933)† ..... .62
Corsicana (heavy) (June 17, 1933)* ... .30
Other fields.....(See gravity table)

Note—Effective July 6, Sinclair Prairie Oil Marketing Co. posted 75 cents; effective July 6, Empire Oil & Refining Co., 75 cents; effective July 7, Magnolia Petroleum Co., 75 cents; Sun Oil Co., 75 cents; effective July 7, Panola Pipe Line Co., 75 cents; June 17, East Texas posted by Stanolind Crude Oil Purchasing Co., 50 cents; effective June 19, Texas Co., Tide Water Oil Co., Humble Oil & Refining Co., Gulf Pipe Line Co., 50 cents.
*Magnolia Petroleum Co. †Eldorado Refining Co.

West Texas

Crane, Upton, Crockett, Howard, Glasscock, Mitchell, Ector, Winkler and Pecos Counties (see note) .....
Lea County, N. Mex. (June 19, 1933) ..$.30
Toborg, Pecos County (June 20, 1933)*. .25
Jones and Fisher Counties..See gravity table

Note—Effective July 7, Magnolia Petroleum Co., 45 cents. Effective June 19, Texas Co., Gulf Pipe Line Co., Humble Oil & Refining Co., 30 cents. Lea County, effective June 19, Texas Co. and other purchasers, 30 cents.
*Shell Petroleum Corp.

Gulf Coast

Grade A and Grade B specifications discontinued by leading buyers .....
.....See gravity table
Tomball (June 19, 1933)* .....$ .65
Livingston (June 20, 1933)† ..... .50
Refugio light .....
.....(See gravity table) (Gulf Coast)*
Refugio heavy (June 19, 1933)* ..... .45
Markham and High Island .....
.....(See gravity table) (Gulf Coast)
Conroe.....(See gravity table)*

*Humble Oil & Refining Co., Markham by Texas Co., and High Island by Yount Lee Oil Co. †Shell Petroleum Corp.

South Central and Southwest Texas

Darst Creek (June 19, 1933).....See note
Mirando (June 19, 1933).....See note
Luling (July 7, 1933) ..... $.50
Pettus (June 19, 1933) ..... .55
Salt Flat (June 19, 1933) ..... .40
Lytton Springs (July 7, 1933) ..... .50

(Continued on Page 30)

Crude Oil Gravity Table

	North Central and East Central Texas	Oklahoma, Kansas, North Central and East Central Texas	Oklahoma, Kansas, North Central and East Central Texas	North Louisiana and Arkansas	Gray County, Texas	Gray County, Texas	Gray County, Texas	Carson, Hutchinson and Moore Counties, Texas	Carson and Hutchinson Counties, Texas	Carson and Hutchinson Counties, Texas	Conroe, Texas	Salt Creek, Wyo.	Gulf Coast, Texas and Louisiana	Gulf Coast, Texas and Louisiana	Caddo, Louisiana	Homer, Louisiana	Haynesville, Louisiana	Sabine, DeSoto, Sarepta-Carterville, Louisiana	El Dorado, Arkansas
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Below 20	....	....	....	....	....	....	....	....	....	....	....	....	$0.32	$0.32	....	....	....	....	....
20-20.9	....	....	....	....	....	....	....	....	....	....	....	....	.34	.34	....	....	....	....	....
21-21.9	....	....	....	....	....	....	....	....	....	....	....	....	.36	.36	....	....	....	....	....
22-22.9	....	....	....	....	....	....	....	....	....	....	....	....	.38	.38	....	....	....	....	....
23-23.9	....	....	....	....	....	....	....	....	....	....	....	....	.40	.40	....	....	....	....	....
24-24.9	....	....	....	....	....	....	....	....	....	....	....	....	.42	.42	....	....	....	....	....
Below 25	....	$0.30	$0.43	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
25-25.9	....	.32	.45	....	....	....	....	....	....	....	....	....	.44	.44	....	....	....	....	....
26-26.9	....	.34	.47	....	....	....	....	....	....	....	....	....	.46	.46	....	....	....	....	....
27-27.9	....	.36	.49	....	....	....	....	....	....	....	....	....	.48	.48	....	....	....	....	....
28-28.9	....	.38	.51	....	....	....	....	....	....	....	....	....	.50	.50	....	....	....	....	....
Below 29	$0.28	....	....	$0.28	....	....	....	....	....	....	....	$0.38	....	....	$0.36	$0.32	$0.29	$0.35	$0.37
29-29.9	.30	.40	.53	.30	....	....	....	....	....	....	....	.40	.52	.52	.38	.34	.31	.37	.39
30-30.9	.32	.42	.55	.32	$0.45	....	....	$0.35	....	....	....	.42	.54	.54	.40	.36	.33	.39	.41
31-31.9	.34	.44	.57	.34	.47	....	....	.37	....	....	....	.44	.56	.56	.42	.38	.35	.41	.43
32-32.9	.36	.46	.59	.36	.49	....	....	.39	....	....	....	.46	.58	.58	.44	.40	.37	.43	.45
33-33.9	.38	.48	.61	.38	.51	....	....	.41	....	....	....	.48	.60	.57	.36	.42	.39	.45	.47
34-34.9	.40	.50	.63	.40	.53	....	....	.43	....	....	....	.50	.62	.58	.38	.44	.41	.47	.49
Below 35	....	....	....	....	....	$0.57	$0.34	....	$0.47	$0.29	....	....	....	....	....	....	....	....	....
35-35.9	.42	.52	.65	.42	.55	.59	.36	.45	.49	.31	$0.59	.52	....	.59	.40	.46	.43	.49	.51
36-36.9	.44	.54	.67	.44	.57	.61	.38	.47	.51	.33	.61	.54	....	.60	.42	.48	.45	.51	.53
37-37.9	.46	.56	.69	.46	.59	.63	.40	.49	.53	.35	.63	.56	....	.61	.44	.50	.47	.53	.55
38-38.9	.48	.58	.71	.48	.61	.65	.42	.51	.55	.37	.65	.58	....	.62	.46	.52	.49	.55	.57
39-39.9	.50	.60	.73	.50	.63	.67	.44	.53	.57	.39	.67	.60	....	.63	.48	.54	.51	.57	.59
40 and over	.52	.62	.75	.52	.65	.69	.46	.55	.59	.41	.69	.62	....	.64	.50	.56	.53	.59	.61

Column 1—Effective June 19, 1933, Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co.
Column 2—Effective July 6, Carter Oil Co., in Kansas and Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas, Oklahoma and North Central and East Central Texas; Tide Water Oil Co. in Oklahoma. July 8, Texas Co. in Oklahoma; Shell Petroleum Corp. in Kansas and Oklahoma; Mid-Continent Petroleum Corp., Rock Island Refining Co., H. F. Wilcox Oil & Gas Co., Champlin Refining Co., Bell Oil & Gas Co., Johnson Refining Co., Eason Oil Co., Deep Rock Oil Corp., Cushing Refining Co., Globe Refining Co., Yale Oil Corp., in Oklahoma. July 13, Gypsy Oil Co. in Kansas and Oklahoma.
Column 3—Effective July 7, Magnolia Petroleum Co. in Oklahoma and North Central and East Central Texas. July 11, Continental Oil Co. in Kansas, Oklahoma and North Texas. July 11, Kanotex Refining Co., White Eagle Oil Corp., Derby Oil & Refining Co., Sunflower Refining Co., Skelly Oil Co., Eldorado Refining Co., in Kansas; Empire Oil & Refining Co. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas, Oklahoma, North Central and East Central Texas; Pure Oil Co. in Oklahoma; Philtex Oil Co. in Kansas and Oklahoma; National Refining Co. in Kansas and Oklahoma. July 12, Twin State Oil Co. in Oklahoma.
Column 4—Effective June 19, Texas Co., Gulf Refining Co., Louisiana Oil & Refining Co. Effective June 20, Magnolia Petroleum Co. Effective June 19, Stanolind Oil & Gas Co. in Pine Island district, Louisiana, and Marion County, Texas, posted below 29 gravity, 26 cents, with 2-cent spread upward to 40 gravity and over, 50 cents. For Standard Oil Co. of Louisiana prices see Columns 16 to 20.
Column 5—Effective July 11, Philtex Oil Co.
Column 6—Effective July 7, Magnolia Petroleum Co. Effective July 11, Sinclair Prairie Oil Marketing Co.
Column 7—Effective June 19, Humble Oil & Refining Co., Gulf Pipe Line Co. and Texas Co.
Column 8—Effective July 11, Philtex Oil Co.
Column 9—Effective July 7, Magnolia Petroleum Co. Effective July 11, Sinclair Prairie Oil Marketing Co.
Column 10—Effective June 19, Humble Oil & Refining Co., Gulf Refining Co. and Continental Oil Co.
Column 11—Effective June 19, Humble Oil & Refining Co. Effective June 22, Texas Co. and Tide Water Oil Co.
Column 12—Effective June 17, Stanolind Oil & Gas Co.
Column 13—Effective June 17, Sinclair Prairie Oil Marketing Co. Effective June 19, Humble Oil & Refining Co. and Gulf Pipe Line Co.
Column 14—Effective June 19, Texas Co. Effective June 20, Magnolia Petroleum Co. in Lockport, Louisiana, while in Cameron Meadows and Iowa, Louisiana, it posted below 30 gravity, 32 cents, with 2-cent differential upward to 34 and above at 52 cents.
Columns 15 to 19—Effective June 19, Standard Oil Co. of Louisiana.

(California Crude Oil Prices on Page 30)

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

Aug. 1, 1933

Taxes

The gasoline quotations given in the following tables include the 1½-cent Federal tax effective June 17, 1933, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third or competitive grade is available at 1 or more cents per gallon under the service station price for the regular grade. Ethyl Gasolines are sold 2 cents above the service station price for the regular grade.

Southern District

STANDARD OIL CO (KENTUCKY)

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wagon
Atlanta, Ga.	22.0	22.0	7.5	10.0
Augusta	22.0	22.0	7.5	11.0
Macon	20.0	20.0	7.5	13 0
Savannah	22.0	22 0	7 5	14.0
Birm'ham, Ala.	24 0	24 0	8.5	13.0
Mobile	22 0	22 0	8.5	10.0
Montgomery	25 0	25.0	8.5	14 0
Jackson, Miss.	21 0	21.0	7.5	11.0
Vicksburg	20.0	20.0	7.5	11 0
Jack'ville, Fla.	21 0	21.0	8 5	12 5
Miami	22.0	22 0	8.5	13 5
Pensacola	19.0	19.0	8.5	13 5
Tampa	22.0	22.0	8.5	12.5
Lexington, Ky.	20 0	20.0	6 5	10 0
Covington	20.0	20.0	5 5	11 5
Louisville	19.0	19.0	6 5	10.0
Paducah	21 0	21.0	6.5	9 0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline. To Pensacola, Montgomery and Birmingham state taxes add 1-cent tax. To Mobile state tax add 1-cent city tax. Dealers receive discount of 2 cents off tank wagon price throughout territory.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wagon
Dallas, Tex.	15.0	17.5	5.5	7.5
Fort Worth	15.0	17.5	5.5	7.5
Houston	15.0	17.5	5.5	8.0
El Paso	15.0	18.0	5.5	8.0
San Antonio	15.5	18.0	5.5	8.0
Texarkana	*17 5	17 5	5 5	†11.0
Muskogee	15.0	17.0	5.5	7.5
Okla City	15.0	17.0	5.5	7.5
Tulsa	15 0	17 0	5 5	7 0
Ft. Smith, Ark.	‡17.9	17 9	5 5	†10.0
Little Rock	‡18 9	18.9	7.5	†10 0

*Less 2½ cents to dealers. †Less 2 cents to dealers. ‡Less 4½ cents to dealers.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wagon
Chicago	15.6	15 6	4 5	8 5
Decatur, Ill.	16 0	16.0	4 5	9.0
E. St. Louis	15 3	15.3	4.5	8.3
Joliet	16 0	16 0	4 5	9.0
Peoria	16.0	16.0	4 5	9 0
Quincy	15.8	15 8	4 5	8 8
Davenport, Ia.	16.1	16 1	4 5	9.1
Des Moines	16 1	16.1	4.5	9 1
Mason City	16 1	16 1	4 5	9.1
Sioux City	15 7	15 7	4.5	8 7
Duluth, Minn.	16 7	16 7	4.5	9 4
Mankato	16.3	16.3	4 5	9 4
Minneapolis	16.4	16 4	4 5	9.3
LaCrosse, Wis.	17.3	17.3	5 3	9 8
Green Bay	17 2	17 2	5.5	9.2
Milwaukee	16 7	16.7	5.5	8 7
Madison	16 9	16 9	5 5	8.9
Detroit, Mich.	16.0	16 0	4.5	9.5
Grand Rapids	16.2	16 2	4 5	9 2
Saginaw	16.5	16.5	4 5	9.5
Evansville, Ind.	17.0	17 0	5 5	9 0
Indianapolis	17.2	17 2	5 5	9 2
South Bend	17.5	17.5	5 5	9.5
Fargo, N. Dak.	18.1	18 1	4 5	11 1
Huron, S. Dak.	18.4	18 4	5.5	10 4
Sioux Falls	17.9	17 9	5.5	9.9
K. C. Mo.*	15.2	15 2	4 5	8 2
Springfield*	15 1	15.1	4.5	8 1
St. Louis	14.2	14.2	4.0	7 7
St. Joseph*	14 8	14.8	4.5	7.8
Wichita, Kans.	14 1	14 1	4 5	7 1
Bartlesville, Ok.	14 0	16.5	5.5	8.5

*State tax 2 cents, 1-cent city tax and 1-cent Federal tax.

Effective June 1, 1933—Discounts off tank wagon price to consumers on 500 gallons or more per month in territory outside of Chicago metropolitan area: 2 cents on Ethyl and Red Crown gasolines, and 1 cent on Stanolind gasoline. One-half cent additional discount in Chicago division.

Effective July 1, 1933—Discounts on resellers authorized agent's agreement made off the service station price throughout the territory as follows: 2.5 cents on Red Crown Ethyl and Standard Red Crown gasolines, and 1.5 cents on Stanolind gasoline. Half of reduction from normal service station price shall be absorbed by reseller up to maximum of 1 cent on all grades.

Stanolex Furnace Oil in Chicago

Effective June 27, 1933, prices f.o.b. Chicago, tank wagon prices: No. 1 (36-40 lt. stw. zero), under 100 gallons, 7¾ cents; No. 2 (30-34 stw. zero), 7¼ cents; No. 3 (22-26 zero), 6¾ cents; No. 4 (12-16 zero), 5¾ cents. Viscosity of No. 4, 90-115 at 100° F.; No. 5, 5½ cents; for deliveries of 100 gallons or more deduct 1 cent.

Naphtha

	Tank	
	Wagon	Car
Oleum spirits	10.7	6.23
V.M.&P. naphtha	12.7	6.73
Cleaners' naphtha	13.0	9.23
Stanisol	13.0	9.23

Tank wagon prices f.o.b. Chicago, January 6, 1932. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

Atlantic Coast District

(Effective June 28)

STANDARD OIL CO. (NEW JERSEY)

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wagon
Atl'tic City N.J.	17.7	18.7	4.5	11.2
Newark	17.0	18.0	4.5	8.5
Annapolis, Md.	18 3	19.3	5.5	9.0
Baltimore	17.8	18.8	5.5	8.0
Cumberland	19.3	20.3	5.5	11.7
Wash'g'n, D. C.	16.0	17.0	3.5	10.0
Danville, Va.	20.4	21.4	6.5	9.9
Norfolk	18 9	19.9	6.5	10.3
Petersburg	19.7	20.7	6.5	11.4
Richmond	19.3	20.3	6.5	10.7
Roanoke	20.5	21.5	6.5	11.0
Charle'n, W.Va.	18.7	19.7	5.5	11.6
Parkersburg	18.0	19.0	5.5	10.2
Wheeling	18.7	19.7	5.5	11.2
Charlotte, N. C.	22.1	23.1	7.5	12.5
Hickory	22.4	23.4	7.5	12.7
Mt. Airy	22.4	23.4	7.5	12.8
Raleigh	21.9	22.9	7.5	12.3
Salisbury	22.2	23.2	7.5	12.6
Charleston, S.C.	19.9	20.9	7.5	10 3
Columbia	21.7	22.7	7.5	12.2
Spartanburg	22.1	23.1	7 5	12.6

Note—Dealer contracts for gasoline are written at 2½ cents over the posted tank car price. The posted tank car price is the sum of the tax and 7.5 cents subtracted from service station price. A 2-cent discount allowed for cash at all service stations. Kerosene 1 cent off tank wagon for 25 gallons or more under contract except New Jersey and Baltimore, Md.

New York and Part of New England District

STANDARD OIL CO. (NEW YORK)*

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wagon
Albany, N. Y.	17.7	18.7	4.5	9.0
New York	17.3	18.3	4.5	8 0
Buffalo	17.9	18.9	4.5	9.0
Rochester	18.0	19.0	4.5	9.0
Syracuse	18.0	19.0	4.5	9.5
Boston, Mass.	17.2	18.2	4.5	8.0
Augusta, Me.	18.7	19.7	5.5	9.0
Manch'tr, N. H.	19 4	20.4	5.5	8.0
Burlington, Vt.	20.0	21.0	5.5	8.5

*All service station prices subject to 2-cent discount for cash.

Central South District

STANDARD OIL CO. (LOUISIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wagon
N. Orleans, La.	18.8	19.8	*7.5	†11.0
Baton Rouge	18.0	19.0	6.5	†10.0
Alexandria	18.9	19.9	*7.5	†8.5
Lafayette	19.1	20.1	*7.5	†10.0
Lake Charles	19.0	20.0	*7.5	†10.0
Shreveport	16.8	17.8	6.5	†11.0
Knoxville, Tenn.	23.7	23.7	8.5	12.5
Memphis	21.1	22.1	8.5	10.0
Chattanooga	22.4	23.4	8.5	10.0
Nashville	23.0	23.0	8.5	10.0
Bristol	22.6	22.6	8.5	13.0
Lt. Rock, Ark.	19.9	20.9	8.5	10.0

*Includes city tax of 1 cent. †Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

Effective June 2, 1933, station price fixed at 7 cents above basic tank car price at key refining points in territory. Discount to cash customers 2 cents off station price. Commercial consumers for tank wagon delivery pay following amounts over tank car price basis yearly deliveries:

1,000 to 75,000 gallons	2 5
75,000 to 300,000 gallons	1.5
Over 300,000 gallons	1.0

Pennsylvania-Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wag'n
Pittsburgh, Pa.	16 0	17 0	4.5	9 0
Philadelphia	16.0	16.5	4.5	9.0
Scranton	16.0	17 0	4.5	9 0
Allentown	16.0	17 0	4.5	9 0
Altoona	16 0	17 0	4.5	9 0
Erie	16.0	17.0	4.5	9.0
Dover, Del.	16.0	17 0	4 5	9 0
Wilmington	16 0	17 0	4 5	9.0
Springf'd, Mass.	17 8	18.8	4 5	8.0
Worcester	17.7	18 7	4 5	8.0
Boston	17.2	18.2	4.5	8 0
Providence, R.I.	16.2	17.2	3.5	8.0
Hartford, Conn.	16.6	17.6	3 5	8.0
New Haven	16.4	17.4	3 5	8.0

On gasoline "split dealers," 2 cents off posted tank wagon price. To 100 per cent dealers, 2.5 cents. To authorized dealers (under lease 1 cent per gallon), 2.5 cents off posted service station price. Commercial accounts, under contract for one year, are sold at a discount off the posted prices, with due consideration to competition.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA*

	Gasoline			Kero.
	Tank truck†	Posted retail	Incl'ds tax	tank wagon
Fresno, Calif.	17.5	20.0	4.5	14.0
San Francisco	17.0	19 5	4.5	12.5
Los Angeles	16.0	18.5	4.5	12.5
Reno, Nev.	20 5	23.0	5.5	15.5
Portland, Ore.	20.0	22.5	5.5	13.5
Seattle, Wash.	20.0	22.5	6.5	13.5
Tacoma	20.0	22.5	6.5	13.5
Spokane	23.0	25 5	6.5	18 0
Phoenix, Ariz.	17.5	20.0	6.5	‡16.0

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent. ‡Includes 5-cent state tax.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wagon
Denver, Colo.	17.0	19.0	5.5	11.5
Pueblo	17.0	19.0	5.5	13.0
Grand Jnctn.	19.0	21.0	5.5	13.0
Casper, Wyo	18.0	20.0	5.5	10.5
Cheyenne	17.0	19.0	5.5	13.0
Butte, Mont.	21 5	23.5	5.5	17.5
Billings	23.0	25.0	6.5	16.0
Great Falls	23.0	25.0	6.5	17.5
Helena	23.0	25.0	6.5	17.5
Salt Lake, Utah	20.0	22.0	5.5	16 0
Albu'que, N. M.	18.0	20.5	*7.5	12.0
Boise, Idaho	23 0	25 0	6.5	18 0
Twin Falls	23.0	25 0	6.5	18 0

*One-cent city tax.

Effective June 1, 1933, dealers and lease and license accounts will receive 2½ cents discount on regular gasoline in Montana, Colorado, Wyoming, Utah and Idaho.

Ohio

STANDARD OIL CO. (OHIO)

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wagon
Ohio points	17.5	*20.5	5.5	†12.5

*Two-cent discount allowed for cash. †Includes state tax of 1 cent, effective July 22.

Nebraska

STANDARD OIL CO. (NEBRASKA)

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wagon
Omaha	16.8	17.8	5.5	9.3
McCook	18.8	19.3	5.5	11.3
Norfolk	17.3	18.3	6.5	10.3
N. Platte	18.3	19.3	5.5	11.0
Scottsbluff	18.3	19.3	5.5	10.8

Note: Discount to dealers and AAA commissions. From service station price: Red Crown Ethyl and Standard Red Crown Gasoline, 2½ cents. Reliance (third brand) gasoline, 1½ cents. Rentals under lease and agents agreement, one-half cent per gallon additional.

Discount to consumers under contracts (large consumers under contracts and governmental units): On tank wagon deliveries of gasoline on monthly purchases of 500 gallons, or yearly purchases of 6,000 gallons, from the service station price: Red Crown Ethyl and Standard Red Crown Gasoline, 2 cents per gallon; Reliance (third brand) gasoline, 1 cent per gallon.

Canada*

IMPERIAL OIL, LTD.

Imperial 3-Star Gasoline

	Gasoline			Kero.
	Tank wagon	Service station	Inc'lds tax	tank wagon
†Hamilton, Ont.	25.0	26.0	6.0	16.0
†Toronto, Ont.	25.0	26.0	6.0	16.0
Brandon, Man.	29 5	33.0	7.0	21.0
Winnipeg, Man.	26.5	30.0	7.0	18.0
Regina, Sask.	29.5	33.5	6.0	22.0
Saskatoon, Sask.	31.5	35.5	6.0	24.0
Edmonton, Alta.	30.0	34.0	6.0	23.0
Calgary, Alta.	26 5	30.5	6.0	19.5
†Vanc'ver, B. C.	29.0	29.5	6.0	23.0
Montreal, Que.	22.5	25.5	6.0	15.5
St. Johns, N.B.	25.0	29.0	7.0	21 0
Halifax, N.S.	24.0	28.0	6 0	21 0

*Imperial gallon used in Canada. †Dealer discount posted tank wagon on gasoline in Ontario and British Columbia subject to dealer's discount of 2 cents per gallon.

TANK WAGON CHANGES

(Regular Grade Gasoline and Kerosene)

Standard Oil Co. of Kentucky, effective July 8, advanced gasoline tank wagon and service station prices 1 cent at Atlanta, Ga., and Augusta, Ga.; effective July 19, reduced gasoline tank wagon and service station prices 1 cent at Lexington, Ky.; effective July 8, reduced gasoline tank wagon and service station prices 1 cent at Vicksburg, Miss.; effective July 27, kerosene advanced from 8 to 10 cents at Mobile, Ala.; effective July 12, kerosene reduced from 12 to 11 cents at Augusta, Ga.

Imperial Oil, Ltd., effective July 20, advanced gasoline tank wagon and service station and kerosene tank wagon prices throughout Canada. At most points the advance was one-half cent per gallon.

Following are changes in the Standard Oil Co. (Indiana) territory not previously reported: Detroit, gasoline tank wagon and service station prices advanced one-half cent, effective July 11, kerosene advanced one-half cent, effective June 21; East St. Louis, gasoline tank wagon and service station prices advanced one-half cent to 15.3 cents on July 11; Mankato, kerosene tank wagon price advanced one-half cent on June 21; Duluth, kerosene tank wagon advanced one-half cent on June 21; Huron, S. Dak., gasoline tank wagon and service station prices advanced one-half cent to 18.4 cents on July 11; Sioux Falls, kerosene tank wagon advanced on July 1 to 9.9 cents; St. Joseph, special price of 6.5 cents for kerosene made effective July 22; Bartlesville, Okla., gasoline tank wagon and service station prices advanced one-half cent to 14.5 cents on July 29.

CRUDE OIL PRICE CHANGES

Pennsylvania grade crudes, produced in New York, Pennsylvania, southeastern Ohio and West Virginia were given a 15-cent price increase on July 26, and Corning, Ohio, grade was raised to 90 cents on July 29.

Pipe Line Rate Hearing Postponed to August 21

AUSTIN, Tex., July 31.—The Texas Railroad Commission today postponed until August 21 a hearing of pipe line operators called to discuss charges made for transporting oil. It also deferred until that date a hearing involving the matter of storage of oil.

Dudley B. Foy, of Wichita Falls, traffic manager of the West Texas Chamber of Commerce, asked leave for his organization to intervene and be treated as a party to the pipe line hearing.

Mr. Foy's petition stated the chamber of commerce "is vitally concerned and interested in the charges assessed and charged by the various common carrier pipe lines for the transportation of oil from, to and between points with the State of Texas; in the charges assessed and charged for the storage of crude oil, and in the other deductions, charges, etc., made by the various purchasers and marketers of oil and its products in the West Texas territory."

NEWS FOR PETROLEUM REFINERS

Garber Refinery Leased By Fox Refining Co.

The refinery of the Garber Refineries, Inc., located at Garber, Okla., has been leased to the Fox Refining Co. for a period of three years. The Garber refinery has been shut down for several months. It has a crude oil capacity of 3,500 bbls. daily and last year modern cracking equipment was installed.

The new owners expect to have the refinery in operation by August 15. Crude oil will be secured by pipe line from the Oklahoma City Field. The Fox company is headed by C. H. Fox who has been connected with Oklahoma refinery operations for several years. Recently he has been president of the Major Petroleum Products Co., which has a skimming plant located in the Oklahoma City Field.

MELAR WITH ATLANTIC-UNION

NEW YORK, July 31.—A. L. Melar, manager of bunker oil sales for the Standard Oil Co. of New Jersey for the past four years, has been made a director of Atlantic Union Oil Co., recently acquired by Standard Oil Co. (New Jersey). Mr. Melar has left for Sydney, Australia, to conduct an inspection tour of the properties of Atlantic Union, and is expected to revamp the sales activities of that company.

Atlantic Union was formerly owned jointly by Atlantic Refining Co. and Union Oil Co. of California, and has an extensive marketing system in Australia and New Zealand.

MAKE LICENSE AGREEMENT

The Gray Processes Corp., owner of the Gray vapor phase clay treatment process for refining cracked gasoline, has entered into licensing agreements with the Texas Co., Standard Oil Co. of Indiana, Pure Oil Co. and the Standard Oil Development Co. The companies named have acquired licenses to use the Gray process on a lump sum royalty basis and Gray Process has obtained the right to grant licenses under the clay treating patents of the four companies.

TO INSTALL CRACKING UNIT

The Cedar Grove Refining Co. of Shreveport, La., has let a contract for the installation of a small cracking unit at its Cedar Grove, La., refinery. The new unit, which will have a daily capacity of 600 bbls., is being built by Emil Geppelt, Jr. E. F. Griswold is president of the Cedar Grove company. The refinery operates with East Texas crude oil.

SALT CREEK PLANT OPERATING

The small skimming plant built by the Salt Creek Refining Co. located in the Salt Creek Field, 40 miles north of Casper, is now operating. C. E. Littlefield is in charge of operations of the plant which has a capacity of 150 bbls. daily. The plant will operate with crude oil from leases owned by the Blackstone-Bessemer interests.

EAST TEXAS PLANTS DOWN

TYLER, Tex., July 29.—According to field reports yesterday and today, between 25 and 30 of the small refineries located in the East Texas Field are shut down. The shutdowns are due to the inability of the owners to secure crude oil at prices which will permit them to operate profitably. It is said that the best price quoted for legally produced crude oil is around 75 cents per barrel delivered at the plants. The recent Federal regulations have reduced the quantity of excess crude oil available at distress prices.

Volatility Improvement and Antiknock Rating Widens Kerosene Demand

By R. STANSFIELD and A. R. STARKS*

Until recently the fuel used for magneto ignition "paraffin engines" was one or other of the usual grades of burning kerosene. These fuels were primarily prepared to give good combustion in the older types of lamp, and the engine users—in farming, fishing and similar industries—preferred to have only one common stock of oil for illuminating purposes, for power, and, in some cases, for heating. In many instances a highly refined kerosene was used because it was most suited for lamp use, although engine builders have known for many years that the cheaper, more naphthenic lamp oils usually gave better results in engines.

The average constants of such a burning kerosene are:

Specific gravity	0.800-0.810
I.B.P., °C.	150-160
Vol. to 185° C., %	10-20
Vol. to 200° C., %	25-60
Vol. to 240° C., %	70-90
F.B.P., °C.	270-280

The octane number of such a kerosene varies from about 10 to 25 (C.F.R. Motor Method), and experience showed that a compression ratio of from 3 to 3.5:1 was all that could be used, even with a clean engine, if heavy knocking were to be avoided. It was, in fact, accepted for many years that a kerosene engine was not running properly unless there was a slight combustion knock on the test bed, and this meant very heavy knocking when the cylinder became dirty with carbon deposits from both the lubricating oil and the fuel after a little use. This involved retardation of the ignition to reduce the knock, followed by loss of power.

The poor volatility of the fuel required the use of highly heated inlet systems to obtain the necessary engine flexibility for sudden changes of load and to permit of running light, and dilution of the lubricating oil was severe. Dilutions of as much as 20 per cent might occur on partial load in 20 hours' running and lead to rapid wear of big end bearings and of the cylinder bore and rings.

Data from country house lighting plant engines running on burning oil and from the same engines, after reconditioning, running on modern power kerosene, show that the wear may be reduced to about half with suitable fuel, and that dilution is very much reduced, and combustion knock practically eliminated, even when the engine reaches the stage where decarbonizing becomes necessary due to valve condition.

The authors know of several cases of engines which used to require decarbonizing at least once every 150 hours when running on burning oil, and which now run for 400 to 600 hours between overhauls on power kerosene.

This change in behavior is due to two causes. First, the antiknock value of the fuel has been raised, and secondly, the distillation range has been altered in the direction of increased volatility.

Naphthenic kerosenes have octane numbers varying from about 30 to 40, but blended fuels may be much superior to these. The use of SO_2 extract from kerosene, obtained in refining for lamp oils, with or without straight kerosene and such material as pressure distillate bottoms from cracking processes, has enabled the antiknock value of power kerosene to be raised to 50-60 octane number, or in special cases to even higher numbers.

As regards distillation, the duty on light oils in the United Kingdom has limited the volatilities of power kerosenes to a maximum of 50 per cent at 185° C. and 95 per cent at 240° C. These limits, however, have meant a very great improvement in engine behavior in engines designed for the older burning oils. As already mentioned, the dilution of the

(Continued on Page 30)

*World Petroleum Congress, London, England.

World Flight Requires Large Quantity of Gasoline

Wiley Post, before the start of his record-breaking flight around the world, talking with Col. H. W. Lake, chief of the aviation division of the Socony-Vacuum Corp. The drums contain 650 gallons of aviation gasoline used in the start of the flight from New York City. Additional gasoline was provided at other points.

M. J. Rathbone Assistant Head of Standard Plant

M. J. Rathbone has been named assistant manager of the manufacturing department of the Standard Oil Co. of Louisiana, with hearquarters at the company's Baton Rouge, La., refinery. Other promotions include those of M. W. Boyer, who succeeds Mr. Rathbone as general superintendent of the refinery, and H. J. Voorhies, who succeeds Mr. Boyer in charge of the technical division.

Mr. Rathbone joined the Standard organization as chemical engineer in 1921. In 1926 he became assistant to the general superintendent and in 1931 was made general superintendent of the refinery. Mr. Boyer was employed as a chemical engineer at the refinery in 1927 and became chief chemical engineer in 1930 and head of the technical division in 1931. Mr. Voorhies joined the organization in 1922 and was employed for several years in the steam, water and gas department. He was placed in charge of process engineers last May.

FRENCH INCREASE OPERATIONS

NEW YORK, July 29.—The increase in French refining operations, since the recent completion of a number of plants in that country, is reflected in statistics covering the first five months of 1933, showing that total throughput of French plants during the period was 792,580 tons, as compared with but 201,199 tons in the comparable months of 1932.

With domestic refining operations increasing, imports of refined products into France are on the decline. A total of 45,444 metric tons of kerosene was imported in the first five months of the year, against 76,791 tons in the corresponding period last year. Gasoline imports, however, held up better at 729,886, against 774,911 tons, while lubricating oil imports were off slightly at 79,131 tons, against 81,736 tons. Fuel oil imports dropped sharply at 260,207 tons, against 301,050 tons, while gas oil imports increased to 161,526 tons from 145,715 tons. Crude oil imports were sharply higher at 787,950 metric tons against 193,411 metric tons in the first five months of 1932.

STANDARD SALES INCREASE

The gasoline sales of the Standard Oil Co. of California showed a large increase in June over May, according to a report released last week by the state gasoline tax collection department. The Standard gain was 9,000,000 gallons. The sales of the General Petroleum Corp. increased almost 50 per cent and most of the other major refiners showed substantial gains. The following table gives the June and May gallonage of the larger distributors:

		June	May
1.	Standard	30,116,786	21,871,161
2.	Shell	16,593,873	13,850,359
3.	Union	13,370,827	12,105,866
4.	Associated	12,731,444	11,720,944
5.	General Pet.	9,725,484	6,979,426
6.	Texaco	4,896,809	4,620,640
7.	Richfield	4,317,406	7,296,463
8.	Wilshire	3,317,314	3,473,451
9.	Hancock	3,302,598	3,210,487
10.	Macmillan	3,185,296	2,744,402
11.	Rio Grande	2,883,017	2,566,866
12.	Caminal	2,355,036	2,265,326
13.	Western	2,491,617	2,038,357
14.	Norwalk	1,524,690	1,319,976
15.	Olympic	1,500,318	1,501,840
16.	Petrol	1,376,989	1,353,141
17.	Bush	1,260,543	1,250,726
18.	Seaside	1,217,643	519,568
19.	St. Helena	1,210,314	1,089,672
20.	Sunset	1,147,012	1,329,078
21.	Exeter	1,022,525	993,903

TEXAS PLANT OPERATING

The North Texas Refining Co.'s 200-bbl. skimming plant, 2 miles south of Wichita Falls, started operations this week processing crude from nearby fields.

Active Buying of Furnace Oils Features Trading in the East Coast Refined Products Market

By A. E. MOCKLER
New York Bureau, The Oil and Gas Journal

NEW YORK, July 31.—With gasoline, lub oils, and other refined products marking time pending further developments in the code situation in Washington, furnace oils were coming in for attention in refined oil markets in this area last week. A prominent independent eastern marketing organization was reported to have placed a contract with a California refiner for three cargoes of No. 2 furnace oil, for shipment during the winter season, at $1.03 a barrel, f.o.b., the contract involving some 240,000 bbls. of furnace oil. Following this deal it was reported that California refiners had advanced their quotation on this oil to a range of $1.10 to $1.15 a barrel, although it was reported in one quarter that $1.05 might still be done on a cargo. Gulf sellers were quoting 3⅛ cents per gallon for No. 2 furnace oil, and a major company was reported to have closed a contract with an eastern independent distributor for 500,000 bbls., for shipment during the winter season, around this figure.

Although bunker "C" and Diesel oil quotations have been advanced recently by East Coast refiners, furnace oil quotations have remained undisturbed at 4 cents a gallon for the No. 2 grade (32-36 gravity oil), the grade of domestic heating oil most traded. While refiners here believe that a higher refinery price is justified on this oil they are unwilling to take any action looking to higher prices until quotations at the Gulf have moved up to a minimum of 3½ cents a gallon, fearing that a 4½ to 5-cent market at refineries on the North Atlantic Seaboard would attract a heavy flow of furnace oil from the Gulf Coast area and possibly from California. With independent marketers here covering their requirements at the Gulf and in California, it is believed that the major eastern refiners are holding back their contemplated price increase until the actual start of the heating oil season. By which time ,it is believed, the independent distributors will have covered their requirements elsewhere, leaving the major companies their regular outlets at a higher price level, which will likewise benefit the independents distributing here on the basis of their present costs.

Refinery Gasoline

Spot volume has been well maintained throughout the week, with jobbers keeping storage full in anticipation of an early price increase. There has been an evening-off process in tank car markets, with quotations higher at several points, bringing these points into line with the generally prevailing levels at principal marketing points.

In the market for U. S. Motor gasoline, New York refiners continue to quote 5.75 to 5.90 cents a gallon, tank car lots, f.o.b. terminals, with the Boston market also unchanged at 5.95 cents, and Baltimore quoting 5¾ cents. Philadelphia sellers, however, are now posting 5¾ cents flat, against 5½ to 5¾ cents during the preceding week, with the Charleston market at 5¾ cents, against the previous quotation of 5¼ cents. On U. S. Motor of 65 octane number and above, the New York market holds unchanged at 6 to 6¼ cents a gallon, with Boston quoting 5.95 to 6.30 cents. Philadelphia sellers are now firm at 6 to 6¼ cents, against a range of 5¾ to 6 cents during the preceding week, while Baltimore sellers are quoting 6 cents flat, against a previous range of 5¾ to 6 cents, and Charleston tank car sellers now post 6 cents flat, against 5¾ to 6 cents during the previous week.

Tank Wagon Gasoline

Of outstanding interest in last week's market was the announcement by leading marketers of a reduction to 2 cents a gallon in the premium charged at retail stations for principal brands of Ethyl Gasoline. The premium motor fuel business has been in a prolonged slump in the East, as has been the case in other parts of the country, and the reaction of the motoring public to the narrowed price differential is being awaited with interest.

Kerosene

There was a moderately active movement of kerosene in the tank car market last week, with quotations holding firm at 5 to 5¼ cents a gallon for water white, f.o.b. refinery or terminal. Stocks of kerosene held at refineries in this area are not large, and it is expected that a number of cargoes will be moved in from the Gulf Coast area and from California shortly to take care of the seasonable increase in consumption, now "just around the corner."

Tank wagon kerosene markets were likewise unchanged during the week, with marketers reporting gallonage well sustained in all parts of the territory.

Bunker Oil

Bunker "C" oil continues steady to firm. Refiners are posting 85 cents per barrel, bulk, f.o.b. refinery or terminal, at principal East Coast refining points. At New York, a concession of 5 cents a barrel is allowed by refiners to contract buyers operating ocean-going steamships, which makes a net price of 80 cents per barrel on most of the business at this port.

Foreign bunker oil is now arriving at New York and other East Coast ports in greater volume, under the "in bond" provision of the customs regulations, which permits the entry of this oil duty free for sale to foreign flag steamships bunkering at United States ports.

Diesel Oil

Gallonage of Diesel oil from the marine trade is picking up steadily as numerous motorships are placed back in commission, after long lay-ups, to take care of the steadily increasing volume of cargo tonnage reaching vessel operators. This revival in shipping operations has been particularly marked in the intercoastal service, although in this trade most of the vessels take on their Diesel oil at California ports, where it may be bought at 80 to 90 cents a barrel, a considerable saving in costs.

Domestic industrial demand for Diesel oil is also holding up well, with refiners quoting 26-30 gravity oil at 4 cents a gallon in tank cars, f.o.b. refineries or terminals.

Gas Oil

Conditions in this division of the market showed no change from the previous week. Business continued along routine lines, with refiners still posting 4 cents a gallon for 28 gravity minimum oil, in tank car lots.

Paraffin Wax

Tonnage in the wax market showed further improvement last week, and prices were strongly held on all melting points, with indications of early increases in quotations for most grades of fully refined. Domestic consumers continued in the market for supplies in sizeable volume, both for prompt and later shipment, and refiners were refusing to make concessions from posted levels.

In the export division of the market, fully refined 130-132 a.m.p. was quoted 10 points higher at 4 cents a pound, with other grades remaining unchanged at the previous week's levels. Demand was more active in this branch of the market, as well.

Petrolatum

While the market was showing continued firmness, the expected advances in spot quotations failed to materialize. Refiners were showing firm price views, however, and it was expected that the next boost in eastern crude quotations would signalize a general increase in petrolatum prices. There was a fairly active demand during the week, particularly on the lighter grades.

Lubs

Refiners were still talking higher prices on bright stocks and cylinder oils, and demand was along fairly active lines throughout the period. Export movement of cylinder oils during recent weeks has been heavy, and refiners have a considerable volume of business on their books for shipment over August. Bright stock No. 8 color was firm at 29 cents a gallon, with sellers talking a 30-cent market for the near future. Straightrun unfiltered oils were also inclined to more firmness, with refiners talking an early increase of one-half to 1 cent per gallon on all grades.

Neutral oils were firmly held at recent price advances, with refiners reporting but routine demand.

Improvement in domestic demand for lub oils has kept pace with the steadily growing export inquiry, indicating a sustained recovery in manufacturing operations in many lines.

Exports and Imports of Refined Products; Receipts of California Oil in the East

NEW YORK, July 31.—The status of "hot oil" stocks moved to Gulf export terminals prior to the clamping down of the lid on shipments of illegally produced oil was the chief topic in export trade circles during the past week. It was reported that between 15 and 20 cargoes of this oil were at various terminals on the Gulf, most of which was reported available for export at around 90 cents a barrel. This price figures out 7½ cents a barrel under the "regular" export market, based on a field quotation of 75 cents and pipe line and loading charges of 22½ cents a barrel. In view of the uncertainty regarding the export or coastwise movement of this oil, due to the Federal regulations, buyers were inclined to remain out of the market pending clarification of the situation. The belief was expressed in trade circles here that in as much as these shipments had "beat the gun" that they would be allowed to move either export or coastwise to clear the terminals for the regular movement of oil.

Export gasoline remained rather slack, with quotations unchanged at 4½ cents for U. S. Motor, and 4¾ cents for 60-62 400 endpoint and 61-63 390 endpoint. Spot 64-66 375 endpoint was reported slightly firmer at the close of the week at 4⅞ to 5 cents per gallon, as compared with quotations ranging 4¾ to 5 cents during the previous week, although during the early part of last week it was reported that one cargo could be picked up at 4½ cents for this grade.

While trading in export kerosene continued dull, the market had taken on a firmer tone, and sellers were quoting water white at 4½ cents and prime white at 4¼ cents a gallon, increases of one-quarter cent per gallon in each instance.

Mexican and Venezuelan crudes, which come into competition with the U. S. Gulf market in France, Germany and elsewhere, were showing more strength last week.

Petroleum Exports

The following table shows exports of principal refined petroleum products reported from the port of New York during the three weeks ended July 22 (all figures in gallons unless otherwise noted):

	Week ended		
	July 22	July 15	July 8
Gasoline	4,000	12,000	28,000
Naphtha	10,000	.....	595,000
Kerosene	.....	3,000	268,000
Fuel and gas oil	190,000	.....	20,000
Lub. oil	2,931,000	825,000	1,270,000
Pet., refined	178,000	25,000	128,000
	Pounds		
Petrolatum	10,000	.....	6,000
Paraffin wax	1,170,000	1,279,000	1,775,000
Refined	.....	277,000	278,000
Scale	137,000	90,000	50,000
Lub. grease	655,000	570,000	661,000

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended July 22 totaled 1,168,000 bbls., a daily average of 166,857 bbls., compared with 1,164,000 bbls., a daily average of 166,286 bbls. for the previous week and a daily average of 150,536 bbls. for the four weeks ended July 22. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	155,000
New York	664,000
Philadelphia	349,000
Total	1,168,000
Daily average	166,857

There were no imports at Gulf Coast ports during the week.

The week's imports consisted of 807,000 bbls. of crude petroleum and 361,000 bbls. of fuel oil.

California Oil Receipts

Receipts of California refined petroleum at Atlantic Coast ports for the week ended July 22 (there were no receipts of California oil at Gulf Coast ports during the period) totaled 44,000 bbls., a daily average of 6,286 bbls., compared with 182,000 bbls., a daily average of 26,000 bbls., during the previous week, and a daily average of 37,679 bbls. for the four weeks ended July 22. The single cargo received during the week was landed at Baltimore, and consisted of gasoline.

NATURAL GASOLINE MANUFACTURE

Decline of 43 Per Cent From Peak in Natural Production

Natural gasoline production in United States in May, the latest available report of the Bureau of Mines was 43 per cent less than the all-time peak production of October, 1929. Although the total production of natural gasoline was greater in 1930 than in 1929, the latter year furnished the month in which the peak output was established.

Following a steady climb in production over a period of several years a peak of 206,300,000 gallons was reached in October, 1929. The production at that time was more than 12 per cent of the total motor fuel output in United States. Production was heavy in both the Mid-Continent and California, the two areas which have furnished the bulk of the natural gasoline output since it became a major product of the oil industry. Oklahoma had a production of almost 2,000,000 gallons of natural gasoline daily of which approximately 1,000,000 gallons was coming from the Seminole area alone.

California natural gasoline production in October, 1929, totaled approximately 2,500,000 gallons daily of which the prolific Santa Fe Springs plants furnished 750,000 gallons daily. Among the smaller states Louisiana was a much larger producer of natural gasoline than it is now with a total of approximately 200,000 gallons daily. Kansas had a production of a little less than 100,000 gallons daily and the entire territory east of the Mississippi River where the natural gasoline industry was founded was producing 300,000 gallons daily.

TABLE SHOWING NATURAL GASOLINE, OCTOBER, 1929, AND MAY, 1933†

(Thousands of gallons)

	October 1929	May 1933	Inc. 1929
Appalachian	8,900	4,200	4,700
Ill., Ky., etc.	1,300	600	700
Oklahoma	59,400	28,900	30,500
Seminole, etc.	30,400	7,700	22,700
Osage County	7,600	3,600	4,000
Oklahoma City	.....	6,400	.....
Rest of State	21,400	11,200	10,200
Kansas	2,800	1,700	1,100
Texas	40,700	30,300	10,400
Panhandle	19,300	14,600	4,700
North Texas	3,900	1,700	2,200
West Central	13,800	7,300	6,500
Rest of State	3,700	4,800	*1,100
Louisiana	6,300	3,200	3,100
Arkansas	2,900	1,300	1,600
Rocky Mountain	4,400	4,600	*200
California	79,600	41,800	27,800
Long Beach	20,100	7,600	12,500
Ventura Avenue	7,100	3,000	4,100
Seal Beach	4,300	.....	.....
Kettleman Hills	.....	10,900	.....
Huntington Beach	3,700	1,700	2,000
Santa Fe Springs	26,200	7,600	18,600
Rest of State	18,200	11,400	6,800
Total (gals.)	206,300	116,600	89,700
Daily average	6,650	3,760	2,890
Total (bbls.)	4,912	2,776	2,136
Daily average	158	90	68

*Increase. †Bureau of Mines report.

Comparing the 1929 figures with those for May of this year shows how quickly the large flush natural gasoline production of new fields falls off. The Seminole area which has been extended since 1929 is now producing only 250,000 gallons daily. Osage County which previous to the advent of Seminole in 1926 and 1927 was the main source of natural gasoline supply in Oklahoma had shown a substantial decline by 1929 and in May of this year had dropped to 100,000 gallons daily.

In California the production in the Southern California Basin area has dropped off from 50 to 75 per cent in the several fields. Long Beach is now producing 250,000 gallons daily which compares with a peak in excess of 750,000 gallons daily. The Santa Fe Springs production is the same as Long Beach and other basin fields are only producing a fraction of their highs.

Comparing the production by states and areas as shown in the accompanying table based on government reports and the following declines for the two months under consideration are shown: Appalachian, 52.8 per cent; Illinois, Kentucky, etc., 54 per cent; Oklahoma, 51 per cent; Kansas, 39 per cent; Texas, 25 per cent; Louisiana, 50 per cent; Arkansas, 55 per cent; California, 35 per cent. The Rocky Mountain area was the only section to show a slight increase its May, 1933, output of natural gasoline being 200,000 gallons greater than in October, 1929. Eliminating the new fields from consideration and the decline in natural gasoline production since 1929 has been more than 50 per cent. It is pointed out that this decline is not entirely due to the decrease in the quantities of casinghead gas available. In general the tendency has been to produce natural gasolines of lower vapor pressures and this has meant in many cases a substantial reduction in output of finished gasoline from the same quantity of casinghead gas.

The only new fields whose natural gasoline production has become of sufficient importance since 1929 to obtain separate listing in the government reports are Oklahoma City in Oklahoma and Kettleman Hills in California. The Oklahoma City Field has not become as large a producer of natural gasoline as predicted by many when the field was first discovered and the output of its several plants now total 200,000 gallons daily. It is unlikely that this total will be increased and it is anticipated that decreases will be under way before the end of the year. The production of Kettleman Hills was well over 500,000 gallons daily for a time but this has decreased to approximately 300,000 gallons daily. This is partially due to the restrictions placed on the production of both crude oil and casinghead gas at the wells.

Another comparison which has something to do with the reduced output now compared to 1929 is the difference in price. Grade AA which is comparable to the present 26-70 in October, 1929, was bringing 6¾ cents per gallon at Oklahoma plants. This now is selling at 3 cents in Oklahoma and since the first of the year has been as low as 1 cent per gallon. The 6¾-cent price was considered low in 1929. The heavy production then was partially the result of favorable prices in 1928 when there were plenty of buyers with prices as high as 10 cents per gallon at the plants.

New 24,000 Gallon Natural Gasoline Plant to Be Built in East Texas Field

A 24,000-gallon natural gasoline plant, capable of handling up to 10,000,000 feet of gas per day, will be built at Willow Springs, 8 miles northwest of Longview in the East Texas Field, by the newly organized Gregg-Texas Gasoline Corp. of Delaware. The plant will be supplied with gas from approximately 600 wells and because of the intermittent gas flow caused by the control of the wells to meet the changing crude oil production allowables, the equipment has been designed to afford maximum flexibility in operation.

The contract for the design and erection of the plant has been given to Petroleum Engineering, Inc., associated with Arthur G. McKee Co. Actual construction will begin at once and the plant is expected to be on production within two months. The plant will involve an expenditure of $225,000.

The available gas in the section in which the plant will be located is unusually high in gasoline content and has been occasioned by the increased use of pumping and other artificial means taken to flow the wells. Some gas will produce between 4 and 5 gallons of 27-pound natural gasoline while the average is expected to yield about 3 gallons per thousand.

The plant equipment will be of the most modern design throughout and will embody the principle of vapor rectification. Clark compressors will be used to boost the gas pressure at which the desired degree of condensation and rectification takes place. This eliminates the use of absorbers. The gasoline will find its principal outlet at Gulf Coast points although no sales program has been announced.

Keith Jones of Shreveport has been named the active head of the new company and Clark Sample of Longview will act as agent in the construction of the plant.

At least two other plants are being proposed for the East Texas Field by groups of producers who will be obligated to increase the use of pumps. However, the building of these plants is contingent upon the stability of the gasoline price at or above 3 cents a gallon and the respective companies are withholding any definite announcement at least until a more definite course may be determined following the application of the proposed oil code.

The production of natural gasoline in the East Texas Field has shown a remarkable increase in the past three months compared to the very small volume produced there previously. However, the total production is expected to never become a major factor.

In May, which is the latest month for which production figures are available from the Bureau of Mines, the East Texas Field produced 1,900,000 gallons. This is less than 2 per cent of the total production of the United States. However, in April the production of natural gasoline from this area totaled only 900,000 gallons and the June increase may serve as an indication of the extent production may be added to as pumping must be resorted to. Similarly, the production of gas and the production of natural gasoline will bear a direct relationship with the extent the Federal Government may enforce any revision in the allowed production of crude in the area.

BUILD PANHANDLE PLANT

Hagy, Harrington & Marsh of Amarillo have a 60,000,000-foot gasoline plant under construction near Pampa in the Texas Panhandle. The engineering department of the Phillips Petroleum Co. is in charge of the construction of the plant.

Permits have been granted other operators in the Panhandle Field for the erection of gasoline plants for the purpose of processing natural gas from their leases in the field, and more gasoline plant construction is expected to be started in the near future.

Production on West Coast Shows Small Decrease for June

Daily average natural gasoline production in California during June was 31,057 bbls., a decrease of 1,032 bbls. daily under May production. Daily average refinery utilization increased from 21,467 bbls. to 26,607 bbls. while daily average shipments decreased from 1,858 bbls. to 520 bbls. Decreased production and the appreciable increase in refinery utilization brought the supply and requirements of natural gasoline closer together so that only 426 bbls. daily were added to storage as compared to 12,771 bbls. the previous month. Stocks held by natural gasoline plant operators decreased from 60,404 bbls. to 52,698 bbls. while stocks held by refiners increased from 2,641,789 bbls. to 2,662,266 bbls. Total stocks inside Pacific Coast territory at the end of June were 2,714,964 bbls., a total increase of 12,771 bbls.

Daily average production of liquefied petroleum gases decreased from 402 bbls. to 379 bbls. in June and daily average sales decreased from 418 bbls. to 407 bbls. Data were compiled by Bureau of Mines.

NATURAL GASOLINE STATISTICS FOR CALIFORNIA COVERING OPERATIONS IN JUNE AND MAY (Data in bbls.)

	Natural gasoline June	Natural gasoline May
Supply		
Total production	31,436	32,491
Stock trans. (deliv.) receipt—net	293	378
Total	31,143	32,113
Deduct refinery requirements:		
Run to stills	2,918	2,922
Blended	23,689	18,545
Total	26,607	21,467
Gains (losses) unaccounted for—net	3,183	2,656
Net supply available to market	1,353	7,990
Demand		
Domestic consumption inc. bunkers	407	499
Total market demand	927	2,357
Surplus or (deficit)	426	5,633
Stocks—Last Day of Period		
Inside United States	2,714,989	2,338,056
At refineries	2,391,573	1,973,919
Elsewhere	323,391	364,137
Increase during period	12,771	174,618

The operations of natural gasoline plants in California during June are shown in the following tables:

Number of plants operating	106
Daily capacity, thousands cu. ft.	2,379,134

PRODUCTION BY FIELDS

	Gas treated (thousand cu. ft.)	Natural gasoline produced (gallons)
Fullerton and Whittier	432,607	1,116,647
Midway	1,547,482	2,729,738
Huntington Beach	763,083	1,765,192
Kettleman Hills	7,372,153	9,241,828
Long Beach	2,922,069	7,057,576
Richfield	385,325	443,595
Santa Fe Springs	4,411,033	7,239,289
Seal Beach	533,909	896,247
Ventura Avenue	2,907,248	2,781,815
All other fields	3,652,703	6,859,895
Total	24,927,557	39,131,892

PRODUCTION BY METHODS

Type of plant—	Gas treated	Natural gasoline produced (gallons)	Gasoline recovery per m.c.f. gas treated
Oil absorption	24,784,482	38,979,318	1.573
Compressor	143,075	152,574	1.066
Total	24,927,557	39,131,892	1 570 Bbls.
Finished gasoline produced at plants			67

STOCKS

	Gallons	Barrels
Natural gasoline held by plant operators	2,213,315	52,698
Natural gasoline held by refineries	63,894,384	2,662,266
Total	66,107,699	2,714,964

NEWS FOR SALES DEPARTMENTS

Indictments for Sale of "Off Specification" Fuels

The first indictments in Texas against gasoline dealers accused of selling "blended" or "off specification" motor fuel have been returned at Beaumont, and 11 filling station operators are awaiting trial in district court on felony charges.

The 11 defendants, who face a total of 13 indictments under the recently enacted Metcalfe-Harmon Act, are being prosecuted by Comptroller Sheppard's new statewide enforcement force. Specifically, they are charged with selling motor fuel having an endpoint of distillation above 437 degrees, from pumps that were not labeled, as the law requires, "Inferior Motor Fuel." The new law requires that such blends be plainly labeled in order to protect the public and the state against loss of tax money which, although paid by the motorist, may fail to reach the comptroller.

In each case, it is alleged, the sales were made to M. B. Walker, a supervisor for the comptroller. F. G. Lamay, state chemist at Austin, is named as a witness in adition to Mr. Walker. Two of the accused dealers are named twice, as each day's violation is a separate offense under the law.

In a recent statement, Comptroller Sheppard announced that his force has increased gas tax payments from the great East Texas production area at the rate of $2,000,000 a year, and predicted that his war against blending over the entire State would raise the total saving to more than $4,000,000 per annum.

AWARD GOVERNMENT CONTRACTS

NEW YORK, July 31.—The Army Quartermaster at Brooklyn has placed a number of important oil orders here recently, including the following: Standard Oil Co. of New Jersey, approximately 1,675,000 gallons of gasoline for various deliveries, at 5.73 to 8.5 cents a gallon. Standard Oil Co. of New York, 150,000 gallons of gasoline for various deliveries at 8 to 12.7 cents per gallon, and 1,550,000 gallons of fuel oil at 2.95 to 3.25 cents per gallon. Warner-Quinlan Co., 30,000 gallons of gasoline at 7.5 to 8 cents per gallon. Shell Eastern Petroleum Products, Inc., 38,000 gallons of gasoline at 6.59 to 8.8 cents per gallon. Mexican Petroleum Co., 860,000 gallons of gasoline at 3.03 cents per gallon. Atlantic Refining Co., 302,500 gallons of fuel oil at 1.88 cents per gallon. Tide Water Oil Sales Corp., 60,000 gallons of gasoline at 7.08 to 8.32 cents per gallon, and 50,000 gallons of fuel oil at 4.79 cents per gallon.

Texas Co., 84,000 gallons of gasoline at 7.13 cents per gallon, and 75,000 bbls. of fuel oil at 74 cents per barrel. Richfield Oil Corp. of New York, 430,000 gallons of gasoline at 5.8 to 8.35 cents per gallon. Standard Oil Co. of Kentucky, 620,000 gallons of gasoline at 4.25 to 8.05 cents per gallon, and 300,000 gallons of fuel oil at 1.79 cents. American Oil Co., 220,000 gallons of gasoline at 5.45 to 10.2 cents, and 170,000 gallons of fuel oil at 7.53 cents. Sinclair Refining Co., 245,000 gallons of fuel oil at 2.6757 cents, and 7,000 gallons of fuel oil at 4.6885 cents. West India Oil Co., 37,926 gallons of gasoline at 13 cents. Arrow Oil Co., 37,500 bbls. of fuel oil at 78 cents a barrel.

Louisiana Oil Refining Corp., 124,000 gallons of gasoline at 4 to 4.5 cents per gallon. Standard Oil Co. of New York has been awarded an order for 21,000 gallons of motor gasoline for delivery at West Point at 6.23 cents per gallon.

Diesel Fuels Must Have Low Viscosity and Satisfactory Ignition Quality

By J. KEWLEY*

The story of the development of gasoline and the gasoline engine during the last decade or two affords a very interesting example of the flexibility of the petroleum industry in providing suitable fuels on the one hand, and of the relation between engine developments and fuel developments on the other. It does not, however, show that parallelism of development along the two lines of production and application which one taking a retrospective view would expect to find. The two developments appear to have been out of step, sometimes even taking divergent paths. For example, at a time when engines were developing in the direction of hotter intake manifolds suitable for fuels of lower volatility, gasolines were becoming more volatile. It now appears obvious that this lack of parallelism and consequent waste of effort might have been avoided, and a correlation of the lines of development effected, by the co-operation of the manufacturers of the engines and of the fuels so that future developments on both sides might have been intelligently anticipated and mutually provided for.

The advent of the high-speed compression-ignition engine is certain to bring about a similar set of conditions which, with the knowledge born of previous experience, should now be handled efficiently, if the necessary co-operation can be effected.

With this object in view the Institution of Petroleum Technologists approached the Institution of Automobile Engineers and the Diesel Engine Users Association with the suggestion that a joint fuel and engine committee be set up representing manufacturers of fuels and manufacturers and users of engines, in the hope that the mistakes illustrated in the development of the gasoline engine might be avoided in the development of the compression-ignition engine.

A questionnaire submitted to a number of manufacturers has elicited replies which, however, were not as helpful as the committee had expected in the direction of standardizing the desirable characteristics of fuels for this class of engine and their relative importance. This short paper based on these replies suggests what in the present state of our knowledge are the characteristics desirable for fuels for this type of engine. It recognises that changes in design must take place and that such changes will call for changes in the character of the fuels; also that there are limitations to the ability of the fuel manufacturer to change his fuel to order, such limitations being partly technical and partly economic. Intelligent co-operation of both parties should avoid waste of effort and accelerate development on both sides.

Fuel characteristics obviously fall into two categories: (a) those connected with the actual combustion of the fuel, and (b) those connected with the behavior or action of the fuel feed system. The characteristics in the first category depend on the chemical composition of the fuels and so are the more difficult for the refiner to change. Those in the second category depend largely on the physical properties which are the more easily altered and controlled.

In the former category are included ignition lag and Diesel knock, carbonization, susceptibility to temperature conditions, completeness of combustion as indicated by absence of exhaust fumes or smell, dilution and contamination of lubricating oil. In the second category fall choking of filters, clogging of injector nozzles, fuel pump difficulties, etc. To these may be added wear either of cylinders, liners, pumps, or other working parts which come into contact with the fuel either before or during combustion, or with the products of combustion as the case may be.

Ignition Lag and Diesel Knock

There is a general consensus of opinion that the most objectionable property of a fuel is its proneness to Diesel knock. The converse of this may be termed ignition quality. It is recognized that fuels exhibit considerable differences in ignition quality, also that the design of the engine combustion space can accentuate or reduce these differences. It is felt that it is not only the ignition lag which determines the rough running but that some other factor such as volatility plays a part. Both these factors find expression in the term ignition quality. This property is regarded of such importance that it is stated that provided the fuel is clean and that the viscosity suits the fuel injection system, there is little or no difference in the behavior of one fuel and another in the engine other than smoothness of running. While the committee would not agree with this entirely, they certainly endorse the opinion expressed as to the importance of the property of ignition quality. Its effect is most noticeable under light load running conditions.

Carbonization

The majority of makers do not regard this as a serious problem. It has been attributed by some to the lubricating oil, by others to too long a period of running on light load.

Susceptibility to Temperature

This factor does not apparently exercise much effect on the combustion efficiency of the high-speed engine. Some makers, however, state that their engines run better when the cylinder jacket temperatures are high.

Exhaust Fumes and Smell

This point is obviously of considerable importance for engines employed on the road. Apart from the smoky exhaust caused by running on a fuel of bad ignition quality, running at low water temperature, especially when starting up, is considered to be a cause. There does not seem to be any definite evidence that the exhaust odor varies with the type of fuel used, subject to the above reservations, of course.

Dilution of Oil

No undue dilution of lubricating oil was reported. Opinions were expressed to the effect that the C.I. engine is superior to the gasoline engine in this respect. Cases of progressive thickening of the lubricating oil with use were on the contrary reported. This was attributed to the gradual accumulation of finely divided

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*Mr. Kewley is chairman of the joint fuel and engine committee of the Institution of Petroleum Technologists, the Diesel Engine Users Association and the Institution of Automobile Engineers. Report presented to World Petroleum Congress, London.

"Housekeeping" Guide for Operators of Oil Stations

Better housekeeping around motor fuel marketing stations is described as an essential to good business and community welfare in a set of rules and recommendations prepared for publication by the Committee on Disposal of Wastes of the Division of Marketing of the American Petroleum Institute. The publication prepared by the committee, headed by O. H. Gundlach, Sinclair Refining Co., with the assistance of D. V. Stroop, American Petroleum Institute engineer, will be distributed within a few days, and more than 15,000 copies have been ordered tentatively. It is the hope of the committee that the 12-page pamphlet that is the first edition of "Disposal of Wastes at Service Stations and Bulk Plants" will become a manual and guidebook for those who service the automobiles of the nation. The service station is described as "the point of contact between the public and the industry" and "the place where the public receives its impression of industry policy and procedure."

"Accumulation or careless disposal of waste materials at service stations and bulk plants," a foreword to the publication says, "may result in the pollution of adjoining property or streams and in the loss of good will of the public toward the industry. Accumulation of oil from accidental spills or overflows, careless handling of used lubricants from crankcases or gear housings, failure to clean up greasing pits and racks, and general lack of good housekeeping at marketing properties all contribute to public disfavor and loss of patronage. If wastes containing volatile flammable liquids are allowed to accumulate on marketing properties, or if they are permitted to discharge into sewers or water courses a fire hazard may result from the vapors which rise from these wastes. Any waste material on a marketing property can, and should be, disposed of in a safe and efficient manner."

"Q" BRAND ON WEST COAST

Associated Oil Co. has introduced for the first time on the Pacific Coast a gasoline containing "Q" brand tetraethyl lead. The new fuel, known as the New Flying A gasoline, was announced July 19 by means of an extensive advertising campaign featuring the terms "quieter" and "smoother" as the keynotes.

The new product is marketed as a non-premium gasoline, succeeding the company's former Flying A brand. Associated continues to market Associated Ethyl Gasoline at a 2-cent premium price.

J. W. CONNOLLY MAKES CHANGE

NEW YORK, July 31.—J. W. Connolly, vice president and former director of Pan American Petroleum & Transport Co., has resigned, and has become associated with the Standard Oil Co. of New Jersey to direct bunker and Diesel fuel oil sales. Mr. Connolly, for 17 years with the Pan American organization, directed the fuel oil and terminal sales for that company for many years. C. P. Sweeney, former assistant to Mr. Connolly, has assumed charge of Pan American's fuel oil department here.

GOVERNOR BRINGS SUIT

Governor Martin of Washington has brought quo warranto action against several large distributors of oil products in that State, charging a conspiracy exists among the companies named which has resulted in unreasonably high prices being charged for gasoline. The governor seeks to have a receiver appointed.

You can't get around a scientific fact

THE combustion of gasoline vapor inside an engine obeys definite laws. An automobile engineer designing a new engine might just as well disregard gravitation as to disregard these facts.

1. More power and greater engine efficiency can be secured from any given engine through greater compression of the gasoline vapor.

2. The practical limit of such compression is determined by the point at which the fuel used detonates.

Untreated gasoline, because of its knocking tendencies, limits the available power of a car to that which can be obtained with comparatively low compression ratios. This restriction on car performance has been lifted in the United States, Canada, and the United Kingdom by the almost universal distribution of gasoline treated with Ethyl.

As a result, 1933 finds nearly every American motor maker selling cars in which high compression engines that *require* Ethyl Gasoline are sold as either standard or optional equipment. Ethyl Gasoline Corporation, Chrysler Building, New York City, U. S. A.

THE WORLD'S HIGHEST QUALITY MOTOR FUEL—

WITH ETHYL

ETHYL GASOLINE CORPORATION NEW YORK, U.S.A.

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Ethyl contains lead.

Preventing Formation of Undesirable Gum Content

(Continued from Page 13)

coal distillation and of the gas industries which possess antioxidant properties to a limited extent and which can frequently be obtained at a price sufficiently low to enable them to be considered as antioxidants in motor fuel even though their effectiveness is of a relatively low order. Phenolic distillates of wood and coal tar are of this class. There may be a question whether such materials can be added to gasoline in the quantity necessary to give satisfactory gum stability without undesirable effects. Possibly there is a field for these less effective inhibitors in the more stable gasolines where the amount of stabilization required is not large. When using inhibitors of this class, the volatility of the inhibitor becomes important, as otherwise the addition of 0.05 to 0.1 per cent will seriously increase the nonvolatile residue of the gasoline. Color will also be a consideration in "white" gasolines.

In this connection it should be mentioned that the more unstable gasolines require a proportionately greater amount of the less effective inhibitors than do gasolines of fair stability. With very unstable gasolines having induction periods of the order of 50 minutes, it becomes practically impossible to obtain satisfactory stability except by the use of very effective antioxidants such as B.A.P. This disproportionality is illustrated by the following data:

TABLE 1—COMPARATIVE EFFECTIVENESS OF EFFICIENT AND INEFFICIENT INHIBITORS IN TWO GASOLINES OF DIFFERENT INITIAL STABILITY

		Induction period, min.	Ratio of amts. of inhibitor required to give 400 min. induction period (value taken from curve)
Low Stability Gasoline			
Unstabilized		115	
B.A.P.	0.001%	285	
B.A.P.	0.0025%	660	
Wood tar dist.	0.0025%	120	21:1
Wood tar dist.	0.01%	225	
Wood tar dist.	0.05%	600	
Moderate Stability Gasoline			
Unstabilized		275	
B.A.P.	0.001%	620	10:1
B.A.P.	0.0025%	930	
Wood tar dist.	.005%	450	

A more accurate comparison can be made by plotting these data to give a quite smooth curve of the relation between amount and effectiveness from which comparisons can be made at any desired degree of stability. Since it has been found that an induction period of 400 minutes is satisfactory, it is logical to make comparisons between inhibitors by the amount needed to give that degree of stability, and the values in the last column were obtained in this way.

As an example of the difficulty of stabilizing very unstable stocks with inhibitors of low effectiveness, a dilute acid-washed and steam-stilled motor benzol which formed 1,576 mg. of gum by the National Benzol Association test was treated with 0.005 per cent B.A.P. The treated sample formed only 7 mg. of gum, whereas another sample treated with 0.05 per cent of tricresol formed 102.5 mg. of gum by the above test.

In a recent article Scheumann gives a good discussion of the proper choice of inhibitors and shows that the solubility coefficient and color stability must be considered as well as the antioxidant effectiveness. It seems desirable, however, to point out that the method employed by this writer for comparing inhibitor effectiveness may lead to rather inaccurate results. The bomb method was used for the gum determinations, employing a temperature of 212° F. for a period of four hours, after which the gum produced was determined. In general the unstabilized sample formed from 120-600 mg. of gum under these conditions, whereas about half of the inhibited samples formed less than 10 mg. of gum. The efficiency of inhibitors was determined by the ratio of the two values obtained, the efficiencies mostly being above 90 per cent for all inhibitors except very poor ones. The method does not adequately distinguish between two inhibitors, one of which may be sufficiently effective to stabilize a gasoline for a period of four hours and another inhibitor which may stabilize gasoline for a period two or three times as long. For example, alpha-naphthol by this test rated 96 per cent in a concentration of 1 mg. per 100 ml., whereas B.A.P. rated only 98 per cent in the same concentration. Our own results in comparing these inhibitors indicate a relative efficiency of about 3 to 1 in favor of B.A.P.

Solubility

As the writers pointed out in their previous paper, the simple aminophenols are in general too water soluble in proportion to their gasoline solubility to make them suitable for general practical use as inhibitors, because water frequently comes in contact with gasoline and will therefore tend to extract any water-soluble inhibitor employed. As a practical matter, it is quite difficult to keep gasoline out of contact with water which gains entrance to storage tanks by condensation from air breathed in, and from other sources. It is not necessary that the solubility in water be nil, but it should preferably be lower than the solubility in gasoline, in order to prevent extraction by the water. Since the amount of water present is usually much less than the amount of gasoline, the ratio of gasoline solubility to water solubility need not be large. The introduction of the benzyl group into p-aminophenol greatly changes it in this respect, making it more soluble in gasoline than in water. The solubility of recrystallized B.A.P. in water and in gasoline has been determined at several temperatures, and these data are shown in Figure 1. The gasoline was a low temperature vapor phase cracked product of about 400° F. end-point. The cloud method was used for the gasoline, seeding during cooling, and the water solubility was determined by evaporating in vacuo a solution saturated at the given temperature. The solubility of B.A.P. in gasoline appears to vary somewhat with the nature of the gasoline. Thus it appears to be greater in aromatic gasolines than others, and it is also probable that solubility will vary somewhat with gasoline volatility. These effects may account for variations in gasoline solubility of B.A.P. reported by others; for example, Scheumann found 0.07 per cent solubility in gasoline and 0.056 per cent in water, although the temperature is not stated. Another investigator has reported 0.082 per cent for water at 76° F. and 0.38 per cent for gasoline at 68° F.

Dibenzyl-p-aminophenol has also been used to some extent as a gasoline antioxidant but is somewhat less effective than B.A.P. and also less color stable. The solubility in gasoline is greater, but, as pointed out above, this is not of much importance, since the distribution ratio of B.A.P. between gasoline and water is already quite favorable. Thus, in a bulk storage tank containing 2,000 bbls. of gasoline and 20 bbls. of water, for example, the amount of B.A.P. which would be extracted by the water (at 70° F.) would only be approximately 0.3 per cent of the total amount added. The following table gives some comparisons between mono and dibenzyl-aminophenol.

TABLE 2—COMPARISON BETWEEN MONO AND DIBENZYL-AMINOPHENOLS IN CRACKED GASOLINE

	Per cent	Induction period, min.
Stock 1	Control	130
+ B.A.P.	0.0012	260
+ B.A.P.	0.0029	330
+ Di B.A.P.	0.002	155
+ Di B.A.P.	0.01	260
Stock 2	Control	150
+ B.A.P.	0.0005	310
+ B.A.P.	0.001	510
+ Di B.A.P.	0.001	275
+ Di B.A.P.	0.003	695

Stock 3—High temp. vapor phase gasoline			
	Control	145	150
+ B.A.P.	0.0005	305	310
+ B.A.P.	0.001	505	520
+ B.A.P.	0.003	1,165	1,305
+ Di B.A.P.	0.001	220	275
+ Di B.A.P.	0.003	590	645
+ Di B.A.P.	0.005	920	940

Certain inhibitors, as previously mentioned, are objectionable from the standpoint of color formation in gasoline, particularly when exposed to light. However, other substances which we term "secondary stabilizers" have been found to exert a protective or color stabilizing action on these compounds, thus making it possible to use them in white gasoline. The compounds which are most successfully used for this purpose are the aliphatic amines, particularly the butyl and amylamines. The addition of a small amount of dibutylamine to a cracked gasoline stabilized with alphanaphthol has been found to greatly increase the color stability in sunlight. Tributylamine has also been found to exert a pronounced color stabilizing effect in conjunction with B.A.P. in cracked gasoline, as is strikingly illustrated by the data in the following table:

TABLE 3—COLOR STABILIZATION WITH PRIMARY AND SECONDARY STABILIZERS

Sample—	Saybolt color after exposure to sunlight: Initial	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.
1. Cracked gasoline, control	26	22	20	20	18
Do. with 0.005% B.A.P.	26	22	20	20	20
Do. with 0.005% B.A.P. and 0.005% Tributylamine	26	24	23	24	24
2. Blended gasoline, control	30	19	*22	*22	*21
Do. with 0.005% B.A.P.	30	24	23	22	*22
Do. with 0.005% B.A.P. and 0.005% Tributylamine	30	26	26	26	26

*Cloudy.

The aliphatic amines have also been found to stabilize the color of certain cracked gasolines themselves, even when no other inhibitors are used. Very small quantities are needed, and the effect is observed both in dark storage and sunlight, although it is more pronounced in the light. The butyl and amylamines have been found to be the most effective of those tried, and the dibutyl and tributylamines are being used extensively for this purpose. The following data illustrate this effect:

TABLE 4—AMINE COLOR STABILIZERS IN GASOLINE

Period of exposure—	Saybolt color after exposure to sunlight: Initial	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.
1. Control	28	24	22	22	22
2. + Di-isoamylamine (0.003%)	..	27	27	26	25
1. Control	25	22	21	20	19
2. Tributylamine (0.01%)	..	21	21	21	21
3. Dibutylamine (0.01%)	..	22	22	21	21

Comparative Response of Gasolines to Inhibitors

It was previously pointed out that the inhibitors are less effective as the original induction period of the gasoline is decreased. Data on quite a wide variety of gasolines, representing different cracking processes on different crudes, have afforded quite a striking regularity in the response with B.A.P. as the inhibitor. Figure 2 shows results obtained with a number of gasolines, all of them relatively fresh when tested. The response to B.A.P. is seen to be a function of the original induction period and, given the induction period test on a gasoline, one can predict with fair accuracy the amount of inhibitor required to bring the gasoline to a desired stability.

The only exceptions to the regularity of this response has been with one or two gasolines of unknown history. Aged gasolines do not accord with the results shown in Figure 2, but show much poorer response than is indicated by their induction periods. Following are some results showing the response of a gasoline at different periods of ageing:

TABLE 5—EFFECT OF AGEING ON RESPONSE TO INHIBITORS

	Induction period, min.
Fresh gasoline	130
Fresh gasoline +0.003% B.A.P.	460
Above gasoline aged 6 weeks	75
Above gasoline aged 6 weeks +0.003% B.A.P.	250
Above gasoline aged 10 weeks +0.003% B.A.P.	150

Probably the explanation of this behavior is that the peroxides formed upon ageing immediately oxidize a portion of the inhibitor added, thus greatly diminishing the effective concentration.

Methods of Adding Inhibitors

In view of the small amounts of inhibitor employed, care must be taken to obtain uniform distribution throughout the gasoline. This may be accomplished by two general methods. The inhibitor may be added to the gasoline in a mixing tank and the contents of the tank agitated or, better, recirculated, pumping out at the bottom and in at the top until sufficient mixing has been obtained. The other method consists in introducing the inhibitor continuously or intermittently into a stream of gasoline going to storage, the amount added being proportioned to the gasoline in the stream. If the inhibitor is a solid, as most of the more effective inhibitors are, it is desirable to use it in the form of a fine powder. For batchwise addition the inhibitor is preferably introduced into a circulating system by means of a venturi eductor. The inhibitor should be added in a ratio well below its solubility, so that it readily dissolves upon mixing in the pumps and lines. The contents of the tank are then further circulated to obtain uniform distribution. A proportioning device for handling powdered materials may also be used but is not considered necessary.

For continuous treatment the inhibitor may also be placed in a drum through which a stream of gasoline is by-passed. An almost saturated solution of the inhibitor is obtained, which is then accurately proportioned into the main stream. The by-pass stream may be heated by a steam coil before entering the drum to increase the solubility of the inhibitor. This method requires considerably more control than in general is apt to be less satisfactory than batch addition.

Solid inhibitors may be added in solution with a suitable solvent, in which case the correct amount of solution may be added to the stream by means of a proportioning pump as with a liquid inhibitor. Where B.A.P. is used it may be dissolved in methanol, alcohol or acetone, in which it is soluble to about 65 per cent at ordinary temperatures. A 50 per cent solution in methanol will not crystallize at temperatures well below 0° F. When using this method it is preferable to employ solutions of less than 30 per cent concentration to facilitate distribution in the gasoline. In place of the alcohols, cresol, benzol, etc., may be used, although the solubility is lower, being about 20 per cent for cresol and 4.8 per cent for benzol at ordinary temperatures.

Acknowledgment

The authors are indebted to J. L. Bussies, P. T. Ward and K. A. Hyle, who have done much of the work herein reported; and to C. R. Wagner and H. M. Steininger, who have co-operated in furnishing some of the data.

AUTOMOBILE ACCIDENT FATAL

FORT WORTH, Tex., July 31.—Frank Keniep, 35, East Texas representative of the General American Tank Co., died in a Gladewater hospital Saturday, July 29, from injuries suffered in an automobile accident.

Problem of Securing Kerosenes From Crude

(Continued from Page 14)

ocean water temperatures of 90°F. have been encountered for several days, with the ullage space vapors as high as 140° F. in certain localities.

(b) Conditions in the Ships' Tanks.—The individual tanks on the carriers contain large amounts of iron rust and moisture despite precautionary cleansing activities. Laboratory experiments were made with kerosene in contact with air, rust, moisture, steel, etc., but no marked discoloration was induced by varying conditions.

Inspections of the individual tanks of a number of kerosene cargo carriers revealed the presence of several copper alloy valve packing glands and fittings in the bottoms of each tank where intimate contact would be maintained with the liquid during the several weeks' voyage. Laboratory experiments indicated that California refined kerosene was discolored in the presence of copper alloy to an extent that varied with the severity of the refining process and the boiling range of the product. The discoloration was quite marked at slightly elevated temperatures, but it was inhibited by small amounts of hydroquinone (0.005-0.010 per cent) and was bleached by a few minutes' exposure to sunlight. No color inhibitors have as yet been used commercially by this refinery.

Nitrogen Bases and Phenols

The kerosene distillates of graduated boiling ranges were analyzed quantitatively for the above classes of compounds to determine if any relation existed between the poor color stability of the higher fractions and these substances.

In all cases the separated compounds were identified by their characteristic odors, but quantitative results are difficult and should be considered as only approximate. An inspection of these results shows that the amount of nitrogen bases increases in fair uniformity with the rise in boiling range of the distillates, while the phenols and naphthenic acids remain reasonably constant.

Refining with 100 per cent SO_2 removed all except a trace of these substances regardless of the amount present in the original distillate. A further slight reduction can be accomplished by a subsequent 98 per cent H_2SO_4 treatment, but all California refined kerosenes examined here have contained traces of these compounds even after double Edeleanu refining and with subsequent 98 per cent H_2SO_4 treatment.

Measurement of Color Stability

Development of a measure for the prediction of the color stability of kerosene shipments became desirable for a guide in the refining. Work on this phase of the investigation has been carried out for some years, and as stated earlier the Hillman test became a part of the shipping specifications.

1. Light Exposure Test.—The first step in this direction consisted in the development of a light exposure test in bottles which was the outgrowth of the light stability test for gasoline that duplicated conditions in visible gasoline pumps. Obviously, conditions of storage and shipment were quite different, as the normal handling of the oil protects it entirely from light. Hence, the test proved useless in practice with the additional objections of variations in testing conditions and the relatively slow drop in kerosene colors, which required daily observations for a week after hourly observations on the first day. When it was reported that the discoloration produced on the voyage to the Orient was completely bleachable by sunlight, the light exposure test was abandoned.

2. Heating Test.—This method consisted in measuring the drop in color obtained by holding the oil at 212° F. in the dark for 24 hours with air excluded. Since cargoes that passed this test later gave rise to color complaints from Oriental consignees, including six purchased shipments of acid-refined kerosene, this test was dropped from consideration.

3. Direct Oxidation Test with Potassium Ferricyanide Reagent.—With the definite failure of the light exposure and heating tests, experiments were made with oxidizing agents. Work here resulted in the selection of alkaline potassium ferricyanide as the most suitable for development into a measure of kerosene color stability. Experiments with this test indicated that the discoloration produced by the reagent varied with the severity of refining of the oil and the boiling range of the product, and that the discoloration was bleachable by sunlight similarly to the discoloration formed during shipment or by exposure to the effect of copper alloys at slightly increased temperatures.

(a) Preparation of the Reagent.—Dissolve 300 grams potassium ferricyanide in 1 liter of water. Dissolve 100 grams NaOH in 1 liter of water. Mix equal volumes of these solution to form the alkaline ferricyanide reagent. The preparation of large amounts of the finished reagent is not advisable due to the tendency of the ferricyanide to decompose in alkaline solution.

(b) Procedure for the Determination. Into a clear 8-ounce sample bottle, place exactly 125 ml. of oil and 15 ml. of the ferricyanide reagent. Shake vigorously for 60 seconds and allow to settle for 60 seconds. Decant the oil through a filter of qualitative paper with cotton inside. Read the color at once on the Saybolt colorimeter.

(c) Correlation of Results.—This correlation is based upon experience gained with the test as applied to cargoes shipped since June, 1930. It must be considered to be tentative and subject to revision in case of unexpected future developments in koresene color instability.

Below 0°	Saybolt—Inferior stability
0-9°	Saybolt—Poor stability
10-15°	Saybolt—Fair stability
16-20°	Saybolt—Good stability
Above 20°	Saybolt—Superior stability

As kerosene discoloration probably is autocatalytic, we believe the above table should be applied to the date of refining, as is done for the Hillman test; however we have not attempted to correlate the test closely with period prior to discoloration.

4. Other Suggested Color Stability Tests.—Numerous other tests of kerosene color stability have been suggested to us by European laboratories and by refiners in the East Indies who have found them useful in determining the quality of their illuminating oils.

These tests have been concerned principally with the detection of small amounts of nitrogen bases and other nitrogenous compounds or the measurement of the drop in color produced by contact with alkaline lead peroxide (Hillman test).

Application of these methods to California kerosenes has not shown any definite relation between the indicated stability and actual experience with shipments to the Orient, except that lead peroxide (Hillman test) discloses the poor stability of California acid-refined kerosenes. On the other hand, the direct oxidation test has been quite useful in predicting the stability, and except for one cargo of retreated kerosene previously mentioned, all cargoes that showed a good rating by this method have been accepted by consignees without complaint.

The direct oxidation test can be considered as measuring the maximum possible discoloration under the most adverse circumstances, which would probably never be attained in the course of the regular Oriental shipment. Hence, a greater drop in color is produced than will occur in practice, but the correlation scale enables an estimate to be drawn as to the relative quality of the oil.

The author takes this opportunity of thanking the Shell Oil Co., in whose laboratories this work was carried out, for permission to publish this paper.

Diesel Fuels Must Have Low Viscosity Quality

(Continued from Page 26)

carbon resulting from incomplete combustion of the fuel.

Choking of Fuel Filters

On this question very different opinions are expressed. Troubles of this kind are definitely due to one or both of two causes: (a) adventitious dirt, (b) separation of paraffin wax or waxy sludge. The former is easily avoided. Nevertheless, there is a feeling that a transparent oil should be used so that absence of adventitious matter could be judged by transparency.

The separation of wax can only be avoided by using a fuel the pourpoint of which is sufficiently low. In other words, the fuel must not separate out any wax at the lowest temperature at which it may have to pass the filter in any particular plant. The pourpoint for practically all the fuels used was below zero centigrade, so that they were satisfactory in this respect.

Clogging of Injector Nozzles

On the infrequent occasions when this has been noticed it has been attributed to either dirt in the fuel, or to difficult running conditions, such as continuous overload. It has also been attributed to lubricating oil passing a leaky piston. In comparison with gasoline engines it is stated that nozzles have a longer life than sparking plugs.

Fuel Pump Difficulties

These are attributed to worn pump plungers or needles and not to the fuel at all. Erosion of the metal of the fuel system has not been observed with any of the commercial fuels used.

Sulphur Content

No manufacturers seem to have had any troubles which can be attributed to the sulphur content of the fuels. The fuels used showed sulphur contents up to 0.5 per cent, although in one case a fuel with over 1 per cent was used. Such things as breakage of electric heater plugs and corrosion of the aluminum casing of the fuel pump were attributed to sulphur, but definite evidence as to this was not available. The general experience with the fuels used was certainly to the effect that sulphur up to 0.5 per cent was negligible, although the same might have been found for fuels of even higher sulphur content had they been available and tried.

Details of all the fuels used by the various makers were not available, but as they were generally the fuels available on the English market, their properties are well known. Certain makers used a large variety of fuels, however, and were therefore able to state their ideas as to the quality or properties desirable.

This survey indicates that the only properties essential to a fuel of a type suitable for use in high-speed compression engines in their present state of development are:

(1) Good ignition quality as measured by some form of engine test.

(2) Suitable viscosity.

(3) Absence of adventitious solid impurity.

(4) No separation of wax at the lowest temperature to which the fuel is subjected.

It is recognized that this list may still be incomplete. No attempt has been made at this stage to define quantitatively the values to be attached to these characteristics, the more so as they will vary for different types of engines. Sufficient data is, however, available to indicate the value of co-operation between the makers of engines and the makers of fuels. The work of the committee in this direction will therefore be continued.

J. A. Moffett Mentioned as Oil Administrator

(Continued from Page 9)

1886, a son of the late James A. Moffett, former president of the Standard Oil Co. (Indiana).

Completing his education at Princeton University, the younger Mr. Moffett joined the Vacuum Oil Co. organization in 1906 as junior clerk. He passed through jobs in the sales department, two of the company's refineries, lubricating sales department and pipe line division. He was assistant to Col. Fred W. Weller in the construction of the company's Bayway refinery and later in the management of the Parkersburg, W. Va., plant, and was a member of the domestic sales committee.

On the organization of the Standard Oil Co. of Louisiana in 1909 Mr. Moffett was made manager of the sales department and assistant to the president. He was made a director of the Louisiana company two years later. In 1919 he was elected to the board of the Standard Oil Co. (New Jersey) as director in charge of foreign and domestic marketing, at the age of 33, giving him the distinction of being the youngest man ever elected to the directorate of the holding company. He became vice president in June, 1924.

Oil Well Shooter Killed by Accidental Explosion

HOUSTON, Tex., July 31.—T. C. McGuire, 63, oil well shooter of West Columbia, died in St. Josephs Infirmary here Friday from injuries suffered in West Columbia Wednesday when a 4-foot length of pipe filled with dynamite exploded.

Two other men, Earl Bergen and H. C. Stamford, were injured. Both were employed by Mr. McGuire.

The explosion occurred when the three men were using the pipe for a roller in moving a heavy piece of oil well machinery. The pipe was crushed, resulting in the explosion, wrecking the machine and throwing the three men to the ground.

Mr. McGuire leaves his wife, one son and two daughters.

TRAVELERS REORGANIZES

A reorganization meeting of the directors of the Travelers Oil Co., Amarillo, elected Walter B. Allen president of the company. This election was necessary to fill the position made vacant by the recent death of B. L. Kingsland, former president of the company. J. L. Gillman was mmed vice president, and Leland Breckenridge, secretary-treasurer.

DISTRIBUTION OF NITROGEN BASES, PHENOLS, AND NAPHTHENIC ACIDS

Boiling range, deg. C.	175–260	190–260	205–260	175–280	190–280	205–280	175–300	190–300	205–300
Nitrogen bases, per cent by wt.	0.041	0.055	0.079	0.107	0.087	0.109	0.143	0.149	0.203
Phenols, per cent by wt.	0.066	0.057	0.082	0.073	0.076	0.069	0.070	0.050	0.119
Naphthenic acids, per cent by wt.	0.033	0.039	0.049	0.032	0.031	0.028	0.026	0.028	0.042

After treatment with 100 per cent liquid SO_2 (equal to a plant treat of approximately 50 per cent) the analyses follow:

Nitrogen bases, per cent by wt.	trace	trace	trace	trace	trace	trace	trace	trace	trace
Phenols, per cent by wt.	trace	trace	trace	trace	trace	trace	trace	trace	trace
Naphthenic acid, per cent by wt.	trace	trace	trace	trace	trace	trace	trace	trace	trace

Improve Volatility and Knock Rating in Kerosene

(Continued from Page 23)

lubricant is much reduced; the response to sudden changes of throttle opening is increased; light load running is facilitated; and the tendency to knock is minimized.

The following are average constants of two power kerosenes, the first being a fuel of exceptionally high octane number of which relatively limited supplies are available, and the second a type more generally obtainable and adequate for most engines on the market.

Spec. grav.	0.830-0.835	0.830-0.840
Vol. to 185° C., %	35-45	40-45
Vol. to 240° C., %	80-90	85-90
F.B.P., °C.	275*	275
Aromatics, %	70	35-40
Approx. octane No.	65-70	50-60

*Maximum.

While such fuels are of little use for burning oils in wick-type lamps, the adoption of electric lighting plants in the country areas, and of the use of dynamos on fishing fleet engines, has made this of less importance than hitherto, while, provided there is absence of free sulphur, they are perfectly satisfactory for pressure type stoves and lamps.

The development of modern power kerosenes has naturally had its effect on engine design. The older engines needed a vaporizer which heated the mixture to about 80-120° C. if good flexibility were to be obtained, and this involved a considerable drop in B.M.E.P. from that obtainable with a petrol engine. The average ratio of power output from a given cylinder capacity between petrol and kerosene was about 5 : 4 with a corresponding increase in fuel consumption for the kerosene engine. When advantage was taken of the higher compression ratio which could be used with petrol, the difference was still greater.

Several attempts were made to increase the performance on burning oil by reducing the mixture temperature, most of these depending on making a very rich and heated mixture of air and fuel and then adding to this a supply of cold air to obtain the proper mixture strength. While such attempts were partially successful they generally resulted in engines with decreased flexibility and greater dilution troubles.

Power kerosenes enable performance to be improved both by a small reduction of mixture temperature and by increase of compression ratio. The latter has now reached values between 3.2 and 4.2 : 1, depending on the size of the cylinder, and this range allows for a considerable length of run between decarbonizings. Designs with the ratio increased to 4.5 : 1 or more have been used, but are liable to lead to complaints when the cylinder becomes dirty. It is, perhaps, the very wide spread from 10 octane number to more than 60 octane number between the available kerosenes which has prevented engine development keeping pace with fuel improvements, since the engine builder cannot demand that only a selected and specified fuel be used. It seems doubtful whether any important changes in either fuels or engines of this type will be made, especially in view of the intensive development of the small high-speed compression ignition engine with its much lower fuel costs and superior performance.

The authors consider that the tests required to assess the qualities of a power kerosene should consist of the determination of its octane number, volatility, and reaction to a copper strip test.

The octane number can be directly determined without any changes of conditions from spirit testing by the C.F.R. Motor Method, the volatility by the I.P.T. method for kerosenes—which incidentally must be performed to ascertain whether the product is outside the taxable limits for motor spirits in the U.K.—and such a copper strip test as the A.S.T.M.D. 130-30 for detection of free and corrosive sulphur is probably most suitable.

On these three tests the kerosene giving the highest octane number and volatility with least tarnishing of the copper strip is to be preferred.

Crude Oil Prices

(Continued from Page 21)

Duval County (June 22, 1933) ..... .40
Saxet (June 19, 1933) ..... .45

Note—Effective July 7, Magnolia Petroleum Co., 55 cents in Darst Creek and Mirando; Darst Creek, Gulf Pipe Line Co. and Humble Oil & Refining Co., 40 cents; effective June 22, Texas Co., Magnolia Petroleum Co., 40 cents; Mirando, Magnolia Petroleum Co., 25 cents; Humble Oil & Refining Co. 40 cents. Pettus and Salt Flat by Humble and Gulf companies; Luling and Lytton Springs, by Magnolia Petroleum Co. Duval and Saxet, by Texas Co.

North Louisiana and Arkansas

Smackover, Ark. (all grades).....See note
Urania, La. (Jan. 20, 1933).....$ .25
East El Dorado, Ark. (June 19, 1933)..
.....See note
Other fields.....See gravity table

Note — Smackover, all grades, effective June 19 by Texas Co., 30 cents; June 19, Standard Oil Co. of Louisiana, 30 cents; June 20, Magnolia Petroleum Co., 30 cents; Gulf Refining Co., 30 cents; Louisiana Oil Refining Corp., 30 cents. Urania Field posted by Louisiana Oil Refining Co. and H. L. Hunt, Inc., East El Dorado, effective June 20, Magnolia Petroleum Co., 30 cents; Gulf Refining Co., 30 cents; Phil Tex Oil Co., effective June 19, posted 20 cents for all grades in Union and Ouachita Counties, Ark.

Eastern States

SOUTH PENN OIL CO.
(Effective July 26, 1933)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field) $2.00
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.67
Penna Grade Oil in Eureka Pipe Line Lines 1.62
Penna Grade Oil in Buckeye Pipe Line Lines 1.47
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (July 29, 1933) ..... .93

TIDE WATER PIPE CO.
(Effective July 26, 1933)

Bradford, Pa. $2.00
Allegany, N. Y. 2.00

PURE OIL CO.
(Effective July 26, 1933)

Cabin Creek, W. Va. $1.62
Bradford Hollow, W. Va. 1.62

PENNZOIL CO.
(Effective July 26, 1933)

Pennsylvania Grade Oil in National Transit Lines:
Group A $1.92
Includes Cochran, Franklin, Hamilton and Doolittle districts.
Group B 1.91
Includes Titusville district.
Group C 1.90
Includes Turkey and Tidioute districts.
Group D 1.83
Includes Bear Creek and Porkey districts.
Group E 1.65
Includes Eldenau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacy and Kinsua districts.
Price depends on length of pipe line haul to plant at Oil City.

Rocky Mountain States

Iles, light (July 8, 1933) ..... $.50
Iles, heavy (July 8, 1933) ..... .44
Florence, Colo. (June 17, 1933) ..... .30
Fort Collins and Wellington, Colo. (June 17).....(See Salt Creek prices)
Cat Creek, Mont. (June 17, 1933)..... .42
Big Muddy (July 8, 1933)† ..... .55
Frannie, light (July 8, 1933) ..... .41
Frannie, heavy (July 8, 1933) ..... .30
Salt Creek and La Barge (July 8, 1933) .....
See Stanolind Mid-Continent price schedule
Grass Creek, light (July 8, 1933) ..... .72
Grass Creek, heavy (Dec. 15, 1932)... .46
Elk Basin (July 8, 1933) ..... .72
Rock Creek (July 8, 1933)† ..... .54
Dutton Creek (July 8, 1933).....
.....See Mid-Continent gravity prices.
Lance Creek (Dec. 16, 1932)† ..... .92
Poison Spider (Mar. 5, 1931)..... .70
Hudson (June 2, 1931) ..... .85
Lander (Mar. 5, 1931)..... .40
Rex Lake (Feb. 25, 1930)..... 1.10
Osage (Jan. 18, 1933)..... .53
Lost Soldier (July 8, 1933) ..... .42
Hamilton Dome (Dec. 16, 1932)..... .30
Torchlight (July 8, 1933) ..... .72
Greybull (July 8, 1933) ..... .72
Pondera (June 17, 1933) ..... .70
Sunburst (July 8, 1933) ..... .90
Hogback, N. Mex. (July 8, 1933) ..... .75
Lea County, N. Mex. (See Note) ..... .30
Maljamar (June 19, 1933) ..... .35
Artesia-Jackson (July 11, 1933) ..... .45

Note—Salt Creek, Cat Creek, Dry Creek, Dallas-Derby, Hudson, Greybull, Hogback and Iles by Stanolind Oil & Gas Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective June 19, by all purchasers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro.
*Continental Oil Co. †Ohio Oil Co.

Middle Western States

OHIO OIL CO.
(Effective July 12, 1933)

Lima ..... $.55
Illinois ..... .90
Princeton, Ind. ..... .90
Plymouth .....Shut in
Western Kentucky ..... .55
Midland, Mich. (July 17, 1933)* ..... .90
Somerset, Ky. (July 14, 1933) ..... .55
Hart County, Ky. (July 7, 1933) 1.00
Muskegon, Mich. (Mar. 27) .....See note

*Posted by Pure Oil Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted price. Muskegon: All companies pay $1 per barrel effective March 27. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium. Hart County, Kentucky, crude purchased by Stoll Refining Co.

Canada

Ontario (Jan. 18, 1933):
Petrolia* $1.71
Oil Springs* 1.33
Turner Valley†:
Crude oil, 31°-35.9° (Jan. 24, 1933).... 1.41
Crude oil, 36°-49.9° (Jan. 24, 1933).... 1.56
Crude oil, 50° up (Jan. 24, 1933)..... 1.41
Discolored naphtha (Jan. 24, 1933)... 1.33
Crude naphtha (Jan. 24, 1933)..... 1.33
*Imperial Oil, Ltd. †Imperial Oil, Ltd. and Regal Oil & Refining Co.

Mexico

Panuco* $0.433

*F.o.b. ship, based on June transactions and exclusive of production and export taxes and bar dues.

California Crude Oil Prices

STANDARD OIL CO. OF CALIFORNIA
(Effective June 26, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.

	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey*	Olinda-Brea Canyon	Athens, Rosecrans, Dominguez	Torrance	Richfield	Whittier, La Habra	Montebello	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga
14-14.9	$0.55	$0.55	$0.55	$0.55	$0.55	$0.55	...	$0.55	$0.55	$0.55	$0.55	$0.55	...	$0.52	$0.52	$0.52
15-15.9	.55	.55	.58	.58	.55	.58	...	.55	.55	.55	.55	.55	...	.52	.52	.52
16-16.9	.55	.55	.60	.61	.58	.61	...	.57	.55	.57	.55	.55	...	.52	.52	.52
17-17.9	.57	.55	.63	.64	.61	.64	...	.60	.59	.60	.55	.57	...	.52	.53	.52
18-18.9	.60	.56	.65	.67	.64	.67	...	.63	.62	.62	.56	.60	...	.53	.56	.52
19-19.9	.63	.60	.68	.70	.67	.69	...	.65	.66	.65	.55	.63	...	.54	.59	.52
20-20.9	.66	.63	.71	.73	.70	.72	...	.68	.69	.68	.55	.65	...	.57	.62	.53
21-21.9	.69	.67	.73	.77	.73	.75	...	.70	.72	.71	.58	.68	$0.60	.61	.65	.56
22-22.9	.71	.70	.76	.80	.76	.77	...	.73	.75	.74	.60	.71	.64	.65	.68	.59
23-23.9	.74	.73	.78	.83	.79	.80	$0.68	.75	.78	.76	.64	.73	.67	.69	.70	.61
24-24.9	.77	.77	.81	.86	.82	.83	.71	.78	.82	.79	.67	.76	.70	.72	.73	.64
25-25.9	.80	.80	.83	...	.85	.85	.75	.80	.85	...	.71	.79	.73	.76	.76	.67
26-26.9	.82	.83	.86	...	.88	.88	.79	.83	.88	...	.75	.82	.76	.80	.79	...
27-27.9	.84	.87	.89	...	...	.91	.82	...	.92	...	...	.84	.80	.83	.81	...
28-28.9	.86	.90	.91	...	...	.94	.86	...	.95	...	...	.87	.85	.87	.84	...
29-29.9	.89	.93	.93	...	...	...	.89	...	.98	...	...	.90	.86	.91	.87	...
30-30.9	.93	.97	.96	...	...	...	.93	...	...	...	...	.93	.89	.95	.89	...
31-31.9	...	...	...	...	...	...	.97	...	...	...	...	.95	.92	.98	...	...
32-32.9	...	...	...	...	...	...	1.00	...	...	...	...	.98	.96	1.02	...	...
33-33.9	...	...	...	...	...	...	...	...	...	...	...	1.01	.99	1.06	...	...
34-34.9	...	...	...	...	...	...	...	...	...	...	...	1.03	1.02	...	...	...
35-35.9	...	...	...	...	...	...	...	...	...	...	...	...	1.05	...	...	...
36-36.9	...	...	...	...	...	...	...	...	...	...	...	...	1.08	...	...	...
37-37.9	...	...	...	...	...	...	...	...	...	...	...	...	1.11	...	...	...
38-38.9	...	...	...	...	...	...	...	...	...	...	...	...	1.14	...	...	...

Elwood—F.o.b. ship, 33-33.9 degrees, 91 cents; 34-34.9, 94 cents; 35-35.9, 97 cents; 36-36.9, $1; 37 degrees and over, $1.01.
Kettleman Hills—33-33.9 degrees, 76 cents; 34-34.9, 78 cents; 35-35.9, 80 cents; 36-36.9, 83 cents; 37-37.9, 84 cents; 38-38.9, 86 cents; 39 degrees and over, 88 cents.
Newhall, McKittrick and Kern River—14 degrees to 19 degrees and over, 52 cents.
Wheeler Ridge—14 to 20.9 degrees, 53 cents; 21-21.9, 55 cents; 22-22.9, 57 cents; 23-23.9, 60 cents; 24-24.9, 63 cents; 25 degrees and over, 66 cents.

The Union Oil Co. met all Standard Oil Co. of California prices in fields where both companies purchase, and posted as follows in East Coyote: 14 to 15.9 degrees, 55 cents; 16-16.9, 57 cents; 17-17.9, 60 cents; 18-18.9, 62 cents; 19-19.9, 65 cents; 20-20.9, 68 cents; 21-21.9, 71 cents; 22-22.9, 74 cents; 23-23.9, 76 cents; 24 degrees and over, 79 cents. Santa Paula, 14 to 18.9 degrees, 55 cents; 19-19.9, 57 cents; 20-20.9, 60 cents; 21-21.9, 62 cents; 22-22.9, 65 cents; 23-23.9, 67 cents; 24-24.9, 70 cents; 25-25.9, 73 cents; 26-26.9, 75 cents; 27-27.9, 77 cents; 28-28.9, 80 cents; 29-29.9, 83 cents; 30 degrees and over, 85 cents. Ojai, 14 to 15.9 degrees, 53 cents; 16-16.9, 54 cents; 20-20.9, 57 cents; 21-21.9, 61 cents; 22-22.9, 65 cents; 23-23.9, 69 cents; 24-24.9, 72 cents; 25-25.9, 76 cents; 26 degrees and over, 80 cents. Lost Hills and Belridge schedule same as that of the Standard Oil Co. of California in Lost Hills; Mount Poso, Kern River, McKittrick schedule same as Standard's Newhall, McKittrick and Kern River schedule except that Union Oil Co. posts 47 cents for 11 to 13.9 degrees, inclusive. Union Oil Co.'s schedule also posts 47 cents per barrel for 11 to 13.9 gravity in Coalinga, Midway-Sunset, Elk Hills and Buena Vista Hills.

Texas Co. effective June 26, 1933, met Standard Oil Co. of California prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield, Montebello-North Whittier, Santa Fe Springs, and pays following prices in Shiells Canyon, South Mountain and Santa Paula: 14 to 18.9 degrees, 55 cents; 19-19.9, 57 cents; 20-20.9, 60 cents; 21-21.9, 62 cents; 22-22.9, 65 cents; 23-23.9, 67 cents; 24-24.9, 70 cents; 25-25.9, 73 cents; 26-26.9, 75 cents; 27-27.9, 77 cents; 28-28.9, 80 cents; 29-29.9, 83 cents; 30 gravity and over 85 cents.

Associated Oil Co., effective June 26, 1933, adopted Standard Oil Co. of California's prices with a few reservations in the upper brackets. In Huntington Beach the highest price is 86 cents for 36 degrees and over. In Seal Beach and Alamitos Heights, top price is 85 cents for 36 degrees and over; Coyote Hills, top price is 73 cents for 33 degrees and over. In Richfield, top price is 85 cents for 35 degrees and over; Torrance, top price is 80 cents for 35 degrees and over; Santa Fe Springs, top price is $1.05 for 35 degrees and over; Midway-Sunset, Elk Hills and Buena Vista Hills, top price is 95 cents for 30 degrees and over; the Associated Oil Co. also posts 47 cents per barrel for 11 to 13.9 gravity oil in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills and Coalinga.

General Petroleum Co., effective June 26, 1933, posted same prices as Standard Oil Co. of California with some reservations in the upper grades in some fields and in lower grades in one field: Midway-Sunset, top price is 95 cents for 30 degrees and over; Alamitos Heights, top price of 85 cents for 36 degrees and over; Santa Fe Springs, bottom price of 70 cents for 34-34.9; Richfield, top price of 85 cents for 35 degrees and over; Brea Canyon, Olinda, top price of 85 cents for 35 degrees and over; Torrance, top price of 80 cents for 35 degrees and over.

Sinclair Prairie Cuts Crude Prices to Meet Humble-Carter Scale

Effective August 1, the Sinclair Prairie Oil Marketing Co. met the Carter Oil Co.'s price schedule in Kansas and Oklahoma and the Humble Oil & Refining Co.'s price schedule in North and Central Texas, East Central Texas, East Texas and the Texas Panhandle.

This was a reduction of 13 cents per barrel in Kansas and Oklahoma and 23 cents in North Central and East Central Texas; 25 cents per barrel in East Texas and 4 cents per barrel on most grades in the Panhandle.

The Sinclair Prairie company had previously met the Magnolia Petroleum Co.'s price schedule. Under its new schedule its prices range from 28 to 52 cents in North Central and East Central Texas; from 30 cents to 62 cents in Kansas and Oklahoma; 50 cents flat in East Texas; from 45 to 65 cents in Gray County, Texas, and from 35 cents to 55 cents in Carson and Hutchinson Counties, Texas. The Empire Oil & Refining Co. on August 1 also met the Carter-Humble prices in the fields in which it purchases crude oil.

Late Fields

GULF COAST

Two more Harris County wildcats were eliminated. Huffman Dome Development Co.'s No. 1 E. M. House, Mary McGruder Survey, on the old Hale prospect in the extreme northeast corner of the county, was abandoned as dry in shale at 5,083 feet. At Cypress, 7 miles southwest of the Tomball Field, Aven Oil Co.'s No. 1 Herman Teske, J. Duckworth Survey, was quit in shale at 5,040 feet.

At East Stratton Ridge, Brazoria County, Amerada Petroleum Corp. and Rycade Oil Corp.'s No. 4 Seaburn was abandoned with drill stem stuck in salt at a total depth of 4,307 feet.

Pure Oil Co.'s No. 1 Stewart, which gives promise of becoming the discovery well for the Louise geophysical prospect in southwestern Wharton County, over the week-end was standing cemented with 9⅝-inch casing seated at 5,961 feet. The well has a sand at 5,963-71 feet.

In the Greta district of Refugio County two additional wells have reached the pay, both indicating important extensions of production. Alamo Oil Co.'s No. 2 O'Brien, E. H. Winfield Survey, approximately 1,200 feet north of production, is in sand at 4,381 feet with 7-inch casing cemented at 4,357 feet. Dash Production Co.'s No. 1 J. M. O'Brien, N. S. Crunk Survey, 1,000 feet southwest of the nearest producer, is standing cemented at 4,338 feet. Eighteen rigs now are running in the Greta district, which, with the exception of the Conroe Field, is the most active area on the Gulf Coast.

OKLAHOMA

An oil showing in a wildcat well in Noble County is reported from Wentz, Feagin and others' No. 1, C SE SW Section 10-21-2e. Layton sand was cored from 3,003 to 3,012 feet. It was well saturated with oil. Drilling was continued and when last reported the total depth was 3,017 feet with considerable salt water. This test is running 111 feet higher than the nearest other test, a dry hole 1¼ miles northwest. The Wentz-Feagin well is 10 miles from the nearest production.

The Amerada Petroleum Corp.'s No. 1, NE SE Section 32-7-4, south extension to the St. Louis Pool, Pottawatomie County, was drilling at 4,179 feet, with about 800 feet of oil in the hole, coming from the Viola lime. The well had reached a depth of 4,087 feet, but trouble was encountered and the hole was cemented back to 3,055 feet and drilling resumed. Viola lime was found at 4,175 feet and Simpson dolomite at 4,162 feet.

Mid-Continent Petroleum Corp.'s No. 1, SW NE Section 33-7-4, had dolomite at 4,295-97½ feet. Three-inch tubing was run to put the well on the pump, when it began to flow making 830 bbls. in 24 hours but cutting about one-half of 1 per cent.

Deep Rock Oil Co.'s No. 1, SE NE NE Section 32-7-4, swabbed 90 bbls. of oil and 2 bailers of water per day for two days from Simpson dolomite at 4,171-4,207½ feet. It may be deepened to the Wilcox sand.

The Magnolia Petroleum Co.'s No. 1, SE cor. NE Section 26-6-4, a wildcat in Pottawatomie County, swabbed 113 bbls. in 13 hours from Hunton lime at 3,110-80 feet. It was deepened to 3,220 feet and put on the pump, making 75 bbls. in six hours. This well had been drilled to 3,565 feet, and plugged back. The Superior Oil Corp. is drilling below 2,570 feet in No. 1, NE cor. Section 5-6-4, the nearest test to the Magnolia well in Section 26.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., July 31.—Gresham and others' No. 2 Rapp & Hatch, a half mile southwest of production in the Tuleta Field, after setting casing in a new sand drilled in and started to run casing. Eight fourbles of tubing were run in when the well started to flow pipe line oil and the running of tubing had to be given up. The well will be completed through the casing. Pressure built up to 450 pounds when the control valves were closed.

KANSAS

Stanolind Oil & Gas Co.'s No. 1, C SE SW, Section 9-20-11w, Barton County, Kansas, found the top of the Siliceous lime at 3,295 feet. At 3,338 feet the hole began to fill with oil, and in 48 hours filled 2,500 feet. It was deepened 2 feet and drilled into water. The crew was plugging back to 3,336 feet preparatory to test.

Conroe Proration Order Attacked in Three Suits

HOUSTON, Tex., July 31.—Proration in the Conroe Pool was attacked in three suits for an interlocutory injunction against its enforcement heard together before a three-judge Federal Court here today. Circuit Judge J. C. Hutchinson, Jr., presided.

Complainants in the individual cases, W. W. Hawkins, the Southern Drilling & Production Co. and the Box-Rollium Oil Co., attacked the July 5 order of the railroad commission setting the field allowable on the ground that the acreage was taken into consideration in fixing the allowable, whereas consideration of the well potential would be a more equitable basis for proration.

The present order, it was asserted, works to the detriment of the small tract holder. The relief requested, the court was told, would increase the daily allowable for the field by only 648 bbls.

Railroads which were alleged to have refused or threatened to refuse to haul oil produced in excess of the allowable were made co-defendants in the cases, which were taken under consideration at the end of the hearing.

C. F. Urschel, Kidnaped Oil Man, Obtains Freedom

OKLAHOMA CITY, Okla., Aug. 1.—Charles F. Urschel, wealthy oil man, kidnaped from his home here Saturday night, July 22, returned last midnight unharmed. No statement was given out as to whether a ransom had been paid to effect his release. "Mr. Urschel is home; that is all we have to say tonight," said Arthur A. Seeligson, brother-in-law of Mr. Urschel.

Mr. Urschel and his friend, W. R. Jarrett, also an oil man, with the wives of the two, were playing bridge on the sunporch of the Urschel residence when two gunmen suddenly appeared and seized both men. The women ran upstairs and locked themselves in a bedroom. The gunmen released Mr. Jarrett after robbing him.

Mr. Urschel was a business associate of the late Tom B. Slick, millionaire wildcatter. Following the latter's death he married Mrs. Slick and he was made trustee of the Slick estate.

ROCKY MOUNTAIN RUNS

Estimated daily average production for the week ending July 29 follows:

WYOMING

	Bbls.
Salt Creek	16,330
Big Muddy	1,790
Badger Basin	40
Byron-Garland	1,000
Byron-East	Shut in
Dallas Derby	530
Dutton Creek	70
Elk Basin	540
Ferris	27
Frannie	200
Grass Creek	Shut in
Greybull	0
Hamilton Dome	340
Hudson	350
LaBarge	940
Lance Creek	140
Lost Soldier	1,850
Mule Creek	Shut in
Midway	50
Notches	Shut in
Oregon Basin	1,980
Osage	590
Pilot Butte	30
Rex Lake	0
Rock River	1,370
South Casper	900
Poison Spider	120
Teapot	20
Warm Springs	Shut in
Total	29,700

MONTANA

Buckley-Border	380
Cat Creek	720
Cut Bank	700
Dry Creek	720
Kevin-Sunburst	3,580
Lake Basin	50
Pondera	1,120
Total	7,270

COLORADO

Florence	270
Fort Collins and Wellington	530
Iles Dome	540
Moffat	530
Orchard	160
Rangely	50
Tow Creek	260
Total	2,290

NEW MEXICO

Artesia	520
Cooper area	60
Empire area	0
Eunice area	610
Getty Pool	0
Hobbs	30,150
Hogback	210
Hospah	Shut in
Jal	1,510
Lea area	2,170
Jackson	330
Maljamar	220
Rattlesnake	640
Table Mesa	80
Total	37,000
Total all fields	76,360
Total previous week	74,100
Difference	2 260

GAS FIRE CONTROLLED

LAKE CHARLES, La., July 31.—The gas blaze in the Shell Petroleum Corp.'s wild gas well in the Iowa Field was snuffed out a second time Sunday after an eight-day fire, caused by explosion of 150 pounds of gelatin. The gasser, running wild since June 26, burned five days on a previous occasion before being extinguished. Plans were started to bring the well under control this week.

Do You Remember?

From The Oil and Gas Journal Files

25 Years Ago

August 1, 1908

With the retirement of Henry M. Flagler as vice president of the Standard Oil Co. of New Jersey, W. H. Tilford, treasurer, has been chosen to succeed him, and C. M. Pratt, secretary, succeeds Mr. Tilford as treasurer. Walter Jennings becomes secretary. H. C. Folger, Jr., of the Tide Water Oil Co. has been chosen as a director to succeed F. Q. Barstow, resigned.

The U. S. Circuit Court of Appeals for the Seventh Circuit, at Chicago, reversed the judgment of Judge K. M. Landis of the U. S. District Court for the Northern District of Illinois, in the suit brought by the Government against the Standard Oil Co. (Indiana). Judge Landis had imposed a fine of $29,240,000 against the company. The case was thrown back into the district court with instructions to grant a new trial.

20 Years Ago

August 7, 1913

The Western Maryland Railroad is experimenting with a method to light its trains with natural gas from storage tanks carried on its trains.

Amos Steelsmith, one of the best known oil operators in North Texas, was killed when a portion of a rig collapsed crushing him. He was a native of Clarion County, Pennsylvania, and had been in the oil business since 1875. At one time Mr. Steelsmith held a lease on 60,000 acres of Creek and Tulsa Counties undeveloped land which included the whole of what was later the Glenn Pool.

The average daily production of Kansas is 6,700 bbls. and of Oklahoma 169,000 bbls. Cushing is the largest pool in Oklahoma, with an output of 18,750 bbls. per day.

Edwin Orrin Crawford, one of the best known oil and gas operators in the United States, was killed at Emlenton, Pa., when his automobile went over an embankment into the Allegheny River. He was 45 years of age.

The Standard Oil Co. of California completes a 12,000-bbl. well in Buena Vista Hills Field.

10 Years Ago

August 6, 1923

The North Central Texas Field (Wichita Falls and Eastland-Ranger districts) is producing 135,000 bbls. per day.

The Powell Field in Navarro County, Texas, is producing 100,000 bbls. per day, with all the big wells in the field pinched in.

In the first six months of the year the Santa Fe Springs, California, Field, averaged 172,117 bbls. per day; Long Beach 148,659 bbls., and Huntington Beach 101,027 bbls.

The Salt Creek Pool in Wyoming is producing 116,600 bbls. per day.

John D. Reynolds resigns as secretary for the Western Petroleum Refiners Association, and will resume his law practice in Chicago. Howard Bennette will succeed him. Mr. Bennette is a Texas lawyer who has done much associational work in that State. He has resigned as secretary of the Texas-Louisiana division of the Mid-Continent Oil and Gas Association.

Foard County Test Proves to Be Most Important Well in Wichita Falls District in Two Years

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., July 31.—A strike of major importance appears to have been made in Texas Co.'s No. 3 Johnson, in Section 36, Block "L," on a block of nearly 8,700 acres located on the Navarro structure in western Foard County. This discovery follows the drilling of five other tests, three of which were dry, one a gasser and another which made 10 bbls. of oil but was abandoned on account of a junked hole.

The present producer made 581 bbls. when deepened to a total depth of 3,571 feet where it was shut down, the 42 gravity oil coming with 3,500,000 feet of gas from gray lime at 3,556-66 feet. Elevation is 1,525 feet.

The well had encountered five separate gas horizons all of which were cased off in order to drill deeper in quest of oil. The first gas was logged at 2,950-70 feet. The well made 30,000,000 feet when it drilled to 3,088 feet. A larger flow of gas was struck at 3,125 feet, the well testing 43,000,000 feet at this depth.

The oil is considered as coming from the Canyon lime which produces in several wells in the Chalk Hill Pool of Archer County, two counties to the southeast. The nearest production to the new discovery is in Wilbarger County, the adjacent county to the east.

Twenty-seven locations were staked in the Wichita Falls district during the week, most of them made for shallow test. This district is the busiest in the western part of the State.

The district is producing around 49,000 bbls. per day.

WEST TEXAS

There were only four completions reported in the Permian Basin during the week, four of which were dry holes, the other making only 10 bbls. initial flow.

Eight locations were reported for the district, four of which were in the southern Ward County producing area. One is a wildcat test near the city of Abilene in Taylor County, two were located in Fisher and the other in Howard County.

PANHANDLE

Of the eight completions reported for the district this week, four were for oil wells drilled deeper to increase production. The Phillips Petroleum Co. recompleted three of its producers in the Finley-Brown area of Gray County.

There were only four locations staked in the district, one of which was outside of proven areas. This test will be drilled by Chism and others on the J. M. Carpenter land in Section 37, Block 25, H.&G.N. Survey, Gray County.

COMPLETIONS IN NORTH TEXAS DISTRICT

Archer County

Fain & McGaha Oil Corp.'s No. 6 Fain & McGaha, dry and abandoned, total depth 1,792 feet; same company's No. 7 Fain & McGaha, oil sand 1,789-94 feet, initial production 10 bbls. oil and 10 bbls. of water, total depth 1,794 feet. Huggins Oil Co.'s No. 3 Parkey, oil sand 1,716-25 feet, initial production 25 bbls., total depth 1,725 feet. C. E. Jones' No. 1 Perkins, dry and abandoned, total depth 760 feet. King & Krahenbuhl's No. 1 Plowman, dry and abandoned, total depth 1,458 feet. A. Kress' No. 1 May Rutty, oil sand 603-07 feet, initial production 10 bbls., total depth 607 feet.

Bonner Oil Co.'s No. 6 Ray, sand 1,116½-27 feet, initial production 80 bbls., total depth 1,128½ feet. E. P. Bowen's No. 1 Slaughter, dry and abandoned, total depth 1,462 feet. L. T. Burns' No. 1 B. D. Ikard, dry and abandoned, total depth 1,055 feet. Continental Oil Co.'s No. 1 B. D. Ikard, dry and abandoned, total depth 1,100 feet. Jim Fish and others' No. 3 Fisher, sand 1,143-48 feet, initial production 8 bbls., total depth 1,151 feet. W. B. Hamilton's No. 1 Winfield, sandy lime 1,137-42 feet, initial production 175 bbls. in 24 hours, total depth 1,149½ feet; same operator's No. 1 James Longley, sandy lime 1,150-56 feet, initial production 200 bbls., total depth 1,156 feet. W. L. Hawkins' No. 2 Pace, dry and abandoned, total depth 1,205 feet.

W. H. Junker's No. 1 Campbell, dry and abandoned, total depth 1,306 feet. Charles Martin's No. 1 Emman Sheckell, dry and abandoned, tota depth 1,197 feet. W. E. Maxson, Jr.'s No. 18 Green, pay 1,125½ feet, initial production 10 bbls., total depth 1,125½ feet. Panhandle Refining Co.'s No. 3 Prideaux, oil sand 639-41 feet, initial production 12 bbls. oil and 6 bbls. of water, total depth 685 feet, plugged back to 649 feet. Shappell Oil Co.'s No. 6 Portwood, show oil 1,369-75 feet, initial production 25 bbls., total depth 1,379 feet. Texas Plains Oil Co.'s No. 1 W. R. Ball, dry and abandoned, total depth 740 feet. White Duncan, Stelley's No. 1 Benson, dry and abandoned. C. C. Williams' No. 1 Andrews, dry and abandoned, total depth 1,005 feet. W. C. Young's No. 1 Hennig, sandy lime 1,396-1,412 feet, initial production 19 bbls., total depth 1,431 feet.

Clay County

Gelchrist and others' No. 1 Householder, dry and abandoned, total depth 360 feet. Metzner & Gerrard's No. 1 Thornberry, oil sand 339-45 feet, initial production 20 bbls., total depth 345 feet.

Bridwell Oil Co.'s No. 4 Tucker, dry and abandoned, total depth 1,757 feet.

Jack County

G. T. Sullivan's No. 1 Allison, temporarily abandoned, total depth 850 feet. L. Hedrick's No. 1 Vayles, dry and abandoned, total depth 525 feet. Taylor and Willbanks' No. 1 Starr, dry and abandoned, total depth 602 feet.

Throckmorton County

Falls Production Co.'s No. 1-A Graham, pay 2,341-46 feet, initial production 73 bbls., total depth 2,346 feet.

Wichita County

J. D. Baird and others' No. 2 Wigley, dry and abandoned, total depth 598 feet. C. W. Clark's No. 4 Allen Kemp, oil sand 655-63 feet, initial production 15 bbls., total depth 663 feet. William Clark's No. 1 Overley, dry and abandoned, total depth 1,801 feet. George Cooper's No. 1 Hoge, abandoned, total depth 1,630 feet. Moore and Bennett's No. 1 Goetze, dry and abandoned, total depth 1,006 feet. J. L. Swanner's No. 1 Parker, dry and abandoned, total depth 804 feet. J. L. Swanner's No. 2 Parker, dry and abandoned, total depth 754 feet. United Production Co.'s No. 17 Hodges, oil sand 1,753-71 feet, initial production 125 bbls., total depth 1,771 feet.

Wilbarger County

The Texas State Oil Co.'s No. 1 R. Guggesberg, dry and abandoned, total depth 1,750 feet.

Young County

Bell and others' No. 1 Stewart, dry and abandoned, total depth 535 feet. Iron Mountain Oil Co.'s No. 18 Tatum, oil sand 660-67 feet, initial production 20 bbls., total depth 667 feet. Jacobs Oil & Gas Co.'s No. 1 Thompson, initial production 40 bbls., total depth 3,940 feet. Kimmell and others' No. 1 Wheat, dry and abandoned, total depth 736 feet. F. W. Massie's No. 1-A Newman, dry and abandoned, total depth 585 feet. Texas Plains Oil Co.'s No. 2 Garvey, oil sand 742-44 feet, initial production 10 bbls., total depth 756 feet. Texas Co.'s No. 1 Jeffery, oil sand 766-72 feet, initial production 80 bbls., total depth 772 feet. Underwood and Campbell's No. 3 Campbell, oil sand 874-77 and 990-94 feet, initial production 21 bbls., total depth 894 feet. D. L. Wolf's No. 3 Wolf, dry and abandoned, total depth 695 feet. Wooten and Reed's No. 1 A. E. Robinson, dry and abandoned, total depth 652 feet.

COMPLETIONS IN RANGER

Coleman County

Centennial Oil & Gas Co.'s No. 1 Will Mathews, pay 3,832-37 feet, initial production 40 bbls., total depth 4,707 feet, plugged back to 4,335 feet.

Parker County

Slusher and others' No. 1 J. L. Jones, temporarily abandoned.

Shackelford County

J. T. Cross' No. 1 J. S. Dennis, dry and abandoned, total depth 556 feet. Waddington and others' No. 1 D. H. Edwards, dry and abandoned, total depth 2,560 feet.

COMPLETIONS IN PANHANDLE DISTRICT

Hutchinson County

Alexander and others' No. 1 Cockrell, pay 2,984-3,031 feet, initial production 142 bbls. on five-day proration test, total depth 3,031 feet.

Gray County

Phillips Petroleum Co.'s No. 8 Palmer (old well drilled deeper), drilled deeper from 2,960 feet to 3,062 feet, new pay 2,960-3,062 feet, initial production 243 bbls.; same company's No. 3 Wright (old well drilled deeper), drilled deeper from 2,875 to 2,970 feet, new pay 2,890-2,970 feet, initial production 90 bbls.; same company's No. 4 Wright (old well drilled deeper), new pay 2,854-80 feet, initial production 105 bbls., total depth 2,880 feet. Sun Oil Co.'s No. 4 Brown, pay 3,156-3,254 feet, initial production 145 bbls., total depth 3,264 feet. Texas Co.'s No. 2 Combs-Worley (old well drilled deeper), drilled deeper from 2,936 to 3,065 feet, pay increases 3,010-35 feet, initial production 76 bbls.

Wheeler County

Rogers & Harner's No. 1 Clark, rig abandoned. Texas Co.'s No. 2 Bentley, pay 2,345-60 feet, initial production 85 bbls. on pump, total depth 2,360 feet. Texas Co.'s No. 2 Bentley, pay 2,345-60 feet, initial production 85 bbls. on pump, total depth 2,360 feet.

COMPLETIONS IN WEST TEXAS

Ector County

Landreth Production Co. and Texas Co.'s No. 1 O. B. Holt, Jr., top pay 4,355 feet, initial production 50 bbls. per day swabbing and flowing through 2-inch tubing, total depth 4,450 feet. Waggoner-Western Corp.'s No. 1 Addis, top pay 3,914 feet, initial production 65 bbls. daily through 3-inch tubing, total depth 3,970 feet.

Glasscock County

Noel T. Lawson's No. 1 Mann Edwards, top pay 2,181 feet, initial production 660 bbls. per day pumping, total depth 2,183 feet.

Howard County

Group Oil Co. and others' No. 3 S. T. Eason, top pay 2,430 feet, initial production 576 bbls. per day on proration test, pumping, total depth 2,460 feet; same company's No. 5 G. W. Overton, top pay 2,432 feet, initial production 624 bbls. on proration test, pumping, total depth 2,445 feet. L. C. Harrison and others' No. 1 Texas Land & Mortgage

(Continued on Page 36)

Wildcat Operations in West Texas

Week Ending July 31

Company, well, farm name, section and block	Remarks
BREWSTER COUNTY	
C. P. Link & Joiner et al's No. 1 McIntyre, 853 ft. from S and 2,390 ft. from E line of Sec. 31, W. J. Mitchell Sur.	T.D. 900 ft.
CONCHO COUNTY	
Beasley et al's No. 1 Waring Estate, 400 ft. from N and E. Sec. 163, T.&N.O. Sur.	**Drlg. 2,675 ft.**
CROCKETT COUNTY	
Yount's No. 1 Shannon, 330 ft. out of NW cor. of Sec. 35, Blk. 1, G.C.&S.F. Sur.	S.D. 2,548 ft.
CRANE COUNTY	
Loffland Bros.' No. 1 Tubbs, 1,334 ft. from N line and 1,320 ft. from W line of Sec. 9, Blk. B-27, P.S.L. Sur.	**Drlg. 1,390 ft.**
CULBERSON COUNTY	
Miller Bros.' No. 1 fee, 1,980 ft. from N line and 660 ft. from E line of Sec. 61, Blk. 97, P.S.L. Sur.	**S.D. 1,062 ft.**
DAWSON COUNTY	
Albaugh, Ray et al's No. 1 Robinson, 1,320 ft. from N and W lines of Sec. 46, Blk. M, E.L.R.R. Sur.	T.D. 1,550 ft.
ECTOR COUNTY	
Broderick & Calvert et al's No. 1 E. F. Cowden, 2,240 ft. from E line, 330 ft. from S line of Sec. 25, Blk. 44, Twp. 2s, T.&P. Sur.	Spudding.
Gilpen et al's No. 1 B. H. Blakeney, 330 ft. from S and 440 ft. from E line of Sec. 32, Blk. 43, Twp. 1n, T.&P.R.R. Sur.	Derrick.
Landreth Production Co. & Llano Oil Co.'s No. 1 O. B. Holt, 660 ft. from S and W lines of N half of Sec. 30, P.S.L. Sur.	Prepare to spud.
Moran's No. 1 R. W. Smith, NW cor. of Sec. 12, Blk. 43, Twp. 1n, T.&P.R.R. Sur.	Drlg. 3,165 ft.
Stanolind Oil & Gas Co.'s No. 2 E. F. Cowden, 660 ft. from N and W lines of Sec. 26, Blk. 43, Twp. 2s, T.&P.R.R. Sur.	Prepare to spud.
Thomas et al's No. 1 Edwards, 440 ft. from S, 2,310 ft. from E. Sec. 38, Blk. 43, Twp. 2s, T.&P. Sur.	**Set casing at 3,337 ft.**
Fred Turner's No. 1-A Addis, 1,650 ft. from N line and 2,200 ft. from E line of Sec. 35, Blk. 45, Twp. 2s, T.&P. Sur.	**S.D. 4,113 ft.; pinched to 40 bbls. daily.**

(Continued on Page 37)

Improvement Continues in East Texas Situation Under the Scrutiny of Federal Investigators

By L. E. BREDBERG

DALLAS, Tex., July 31.—The situation in East Texas continues to improve under the eyes of Federal investigators in the field. Twenty-three of the 50 refineries are shut down. This no doubt is due to the Government spreading its regulations to cover the interstate shipments of refined products, the refineries in many cases withholding the refining and interstate shipments of products made from illegally produced crude. Closing this number of refineries shuts in approximately 30,000 bbls. of crude oil in the field.

Some of these plants have lost connections due to the producers being afraid to run more than their allowable. The plants heretofore accepted more than the allowable from the producers, but since the Federal forces moved in they are playing safe. The connections, in many instances, were severed and given to larger purchasers which have been paying the posted price, but taking only the allowable from the wells. The crude and refined market has been strengthened in the field since the advent of the Federal investigators.

Back Allowable Oil Still Off Market

Operators, pipe line companies, railroads and refineries are all taking the Federal intervention seriously, which means that from 100,000 to 200,000 bbls. daily overproduced oil has been taken off the market.

Back allowable oil will continue to be held off the market until August 15, the Railroad Commission having extended its present order to be in effect to that date. Production is being held to around the daily allowable. Distribution ran nearly 28,000 bbls. per day above production for the week ending July 27. This is an exceptionally small amount in comparison to what has been run in the past above the allowable. This distribution overage is due to pipe line companies and refineries drawing upon stored oil in the field.

Regulations Drafted

Strict regulations have been drafted regarding tenders of oil for shipment from the field, and such tenders will have to be applied for at the Kilgore office of the railroad commission, accompanied by affidavits of where the oil was produced, where stored and other pertinent data connected therewith.

Capt. E. N. Stanley in charge of the field force of the commission will confirm the tenders. Disapproved tenders may be appealed to the commission at Austin, but such reviewals will probably be made at public hearings, all of which will go to strengthen proration rules in this field by making illegal tenders almost impossible to obtain unless politics enters in at Austin to pervert regulations. False swearing in order to obtain tenders will bring a fine of $1,000 or six months in jail, according to Federal statements.

Some of the refineries shut down are unwilling to furnish approved tender now required to move gasoline and other products in interstate commerce. Such refusal comes as a result of refining oil that did not have a clear bill as far as proration regulations were concerned, and although the plants have their storage filled they elect to sell their refined products within the State rather than take any risks by shipping it outside of Texas.

Present orders for the field were due to expire today, but the railroad commission postponed its hearing which was due to be held this week, consequently all regulations and the present allowable will be retained until such hearing is held.

There were 38 locations staked in the field this week while 36 wells were completed. Only one location was staked for a wildcat test and five such tests were abandoned in the district.

The Bateman Drilling Co.'s test on the Carlisle tract in the Mary Elam Survey, Leon County, is now down to 5,490 feet in shale with no showings of oil. The outcome of this test will probably be known this week. Present appearances are not encouraging.

Looks Like Another Dry Hole

The Devonian Oil Co.'s No. 1 J. G. Beall in the Isaac Connelly Survey, Freestone County, appears to be another dry hole for East Texas. It is now standing shut down at 5,057 feet in dry sandy shale. It may be abandoned at this depth.

Dilworth-Hager and Ashby's No. 1 Logan is carred on the completion report this week as a dry hole. This test is located in the A. C. Wetmore Survey, Hopkins County. Total depth is 3,559 feet. It topped the Woodbine series at 3,174 feet. This was another interesting test, in the northern tier of East Texas counties.

Mudge Oil Co. is drilling another test in Hopkins County. Location is in the northeast corner of the T. R. Cargile 60-acre tract in the John Hastings Survey. Last report on this well named it as drilling below 1,200 feet. This location is in the fault zone in north central Hopkins.

Campbell & Champlin have staked location for their No. 1 R. S. Ansley in the N. H. Thompson Survey, Henderson County. Another test for this county is William C. McGlothlin, LaRue and others on the H. English farm in the J. Hendriquez Survey. A rig is up on the location.

COMPLETIONS IN EAST TEXAS

North Gregg County

Adams & Lyles' No. 5 Taylor-Anderson, top sand 3,484 feet, initial production 75 bbls. per hour through 2-inch tubing choke, total depth 3,509 feet.

Atlantic Oil & Production Co.'s No. 19-B Burnside, top sand 3,478 feet, initial production 120 bbls. per hour through 2-inch tubing choke, total depth 3,537 feet.

East Texas Refining Co.'s No. 6 Doby, top sand 3,701 feet, initial production 80 bbls. per hour through 2-inch tubing choke, total depth 3,727 feet.

East Texas Refining Co.'s No. 5 C. Fisher, top sand 3,478 feet, initial production 15 bbls. in 20 minutes through 2½-inch tubing choke, total depth 3,504 feet.

East Texas Refining Co.'s No. 2 D. G. Sparks, top sand 3,669 feet, initial production 90 bbls. per hour through 2-inch tubing choke, total depth 3,691 feet.

East Texas Refining Co.'s No. 6 T. W. Tuttle, top sand 3,519 feet, initial production 90 bbls. per hour through 2-inch tubing choke, total depth 3,560 feet.

Faith Oil Co.'s No. 4 J. C. Barrett, top sand 3,676 feet, initial production 70 bbls. per hour through 2-inch tubing choke, total depth 3,696 feet.

Gulf Production Co.'s No. 39 J. C. Judge, top sand 3,496 feet, initial production 70 bbls. per hour through 2-inch tubing choke, total depth 3,526 feet.

Lee & Burnett's No. 1 Walker, top sand 3,596 feet, initial production 100 bbls. per hour through 2½-inch tubing choke, total depth 3,620 feet.

Magnolia Petroleum Co.'s No. 3 L. E. Orms, top sand 3,558 feet, initial production 116 bbls. per hour through 2-inch tubing choke, total depth 3,586 feet.

Magnolia Petroleum Co.'s No. 10 C. F. Smith, top sand 3,558 feet, initial production 80 bbls. per hour through 2-inch tubing choke, total depth 3,645 feet.

Powell & Irion's No. 1 Godfrey, top sand 3,582 feet, initial production 90 bbls. per hour through 2-inch tubing choke, total depth 3,602 feet.

Superior Oil Co.'s No. 14-A Prichard, top sand 3,514 feet, initial production 38 bbls. in one-quarter hour through 2½-inch tubing, total depth 3,550 feet.

Sutton & Hawkins' No. 6 Whittaker, top sand 3,498 feet, initial production 80 bbls. per hour through 2-inch tubing choke, total depth 3,527 feet.

Wise & Jackson's No. 5 Rosa Corbin, top sand 3,602 feet, initial production 150 bbls. per hour through 2½-inch tubing choke, total depth 3,645 feet.

South Gregg County

Everett Drilling Co.'s No. 2 O. Cooke, top sand 3,643 feet, initial production 65 bbls. per hour through 1-inch tubing choke, total depth 3,655 feet.

Gulf Production Co.'s No. 53 S. Hilburn, top sand 3,496 feet, initial production 210 bbls. per hour through 1-inch tubing choke, total depth 3,521 feet.

Rogers-Lacy's No. 5 fee, top sand 3,543 feet, initial production 185 bbls. per hour through 1-inch tubing choke, total depth 3,595 feet.

Mullendore & Berry's No. 3 G. Davis, top sand 3,590 feet, initial production 45 bbls. per hour through thirty-sixty-fourths inch choke on 2½-inch tubing, total depth 3,607 feet.

Sun Oil Co.'s No. 8 A. G. Morton, top sand 3,480 feet, initial production 85 bbls. per hour through 1-inch tubing choke, total depth 3,493 feet.

North Rusk County

Abercrombie & Harrison's No. 2 Cantrell, top sand 3,650 feet, initial production 140 bbls. per hour through 1-inch tubing choke on 2½-inch tubing, total depth 3,670 feet.

Everts Drilling Co.'s No. 2-A C. O. Christian, top sand 3,747 feet, initial production 80 bbls. per hour through 1-inch tubing choke on 1¾-inch tubing, total depth 3,755 feet.

L. Hickman's No. 3 A. Hindman, top sand 3,629 feet, initial production 140 bbls. per hour through 1-inch tubing choke, total depth 3,643 feet.

South Rusk County

Jim Cloud's No. 11 W. F. Neal, top sand 3,744 feet, initial production 30 bbls. per hour through 1-inch tubing choke, total depth 3,747 feet.

Dyck Oil Co.'s No. 4 John Bell, top sand 3,811 feet, initial production 60 bbls. per hour through 2-inch tubing choke, total depth 3,822 feet.

Humble Oil & Refining Co.'s No. 34-A

East Central Texas Wildcats

Week Ending July 31

FRANKLIN COUNTY

Company, well, farm name, section and block—	Remarks
Van Emon et al's No. 1 O. S. Maxton, 910 varas W and 910 varas S of NE cor. of survey, John Brown Sur.	Bldg. derrick.

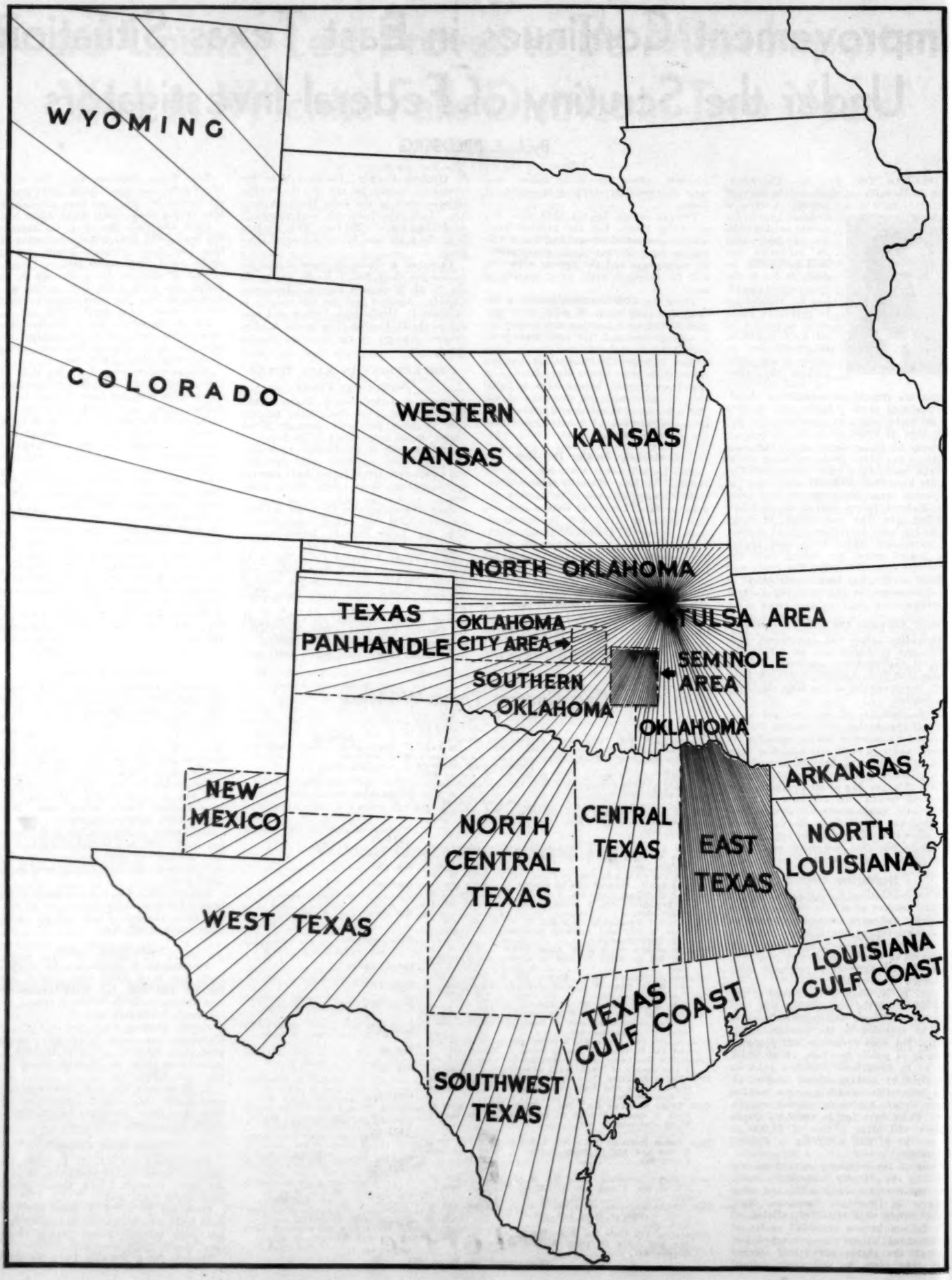
FREESTONE COUNTY

Devonian Oil Co.'s No. 1 J. G. Beall, 330 ft. out of SE cor. of 320-ac. tract, 2 miles SW of Donie, Isaac Connelly Sur.	Coring 5,006 ft.

GREGG COUNTY

Adams and Lyles' No. 5 L. Howard, 1,400 ft. from N line and 2,320 ft. from W line of survey, Mary Scott Sur.	Waiting on cmt. to set; T.D. 3,615 ft.
Adams & Lyles' No. 6 Taylor-Anderson, center of E and W lines and 50 ft. from N line of lease, J. Ruddle Sur.	Rig up.
Almeda Oil Co.'s No. 3 R. P. Doby, 737 ft. from W line and 910 ft. from S line of survey, M. Irwin Sur.	Derrick.
Arcadia Refining Co.'s No. 1 R. M. Wood, 100 ft. W of Republic's No. 1 Wood in Blk. No. 134, H. R. Hokit Sur.	Rig up.
Atlantic Oil Producing Co.'s No. 7 W. Smith, 150 ft. from W line and midway between Nos. 1 and 6, J. S. Carrithers Sur.	Bldg. derrick.
Badgett et al's No. 1 A. A. King, 2,200 ft. from S line and 395 ft. from W line of survey, M. Tennyson Sur.	Drlg. 1,600 ft.
Bristow & Wynn's No. 6 Moore, 389 ft. from S line and 75 ft. from W line of lease, D. Moore Sur.	Drlg. 2,300 ft.
Cal-Tex Oil Co.'s No. 5 L. D. Crim, center between Nos. 1, 2, 3 and 4, W. F. Chisum Sur.	Drlg. 2,600 ft.
Canadian Oil Co.'s No. 3 Whittaker, 147 ft. W and 73 ft. S of original SE cor. of Shell Petroleum's Jones lease, C. Alexander Sur.	Derrick.
C. & G. Oil Co., Inc.'s No. 2 Hoyt, 290 ft. from N line and 535 ft. from E line of lease, J. Mosley Sur.	Rig up.
Cranfill & Reynolds' No. 3 Howard, 660 ft. S of No. 2 and center of tract, Mary Scott Sur.	Rig up.
East Texas Refining Co.'s No. 5 R. R. Collins, 3,480 ft. from N line and 5,290 ft. from W line of survey, D. Sanches Sur.	Derrick.
East Texas Refining Co.'s No. 4 T. W. Tuttle, 5,060 ft. from N line and 6,900 ft. from W line of survey, W. H. Castleberry Sur.	Waiting on cmt. to set; T.D. 3,575 ft.
East Texas Refining Co.'s No. 8 White, 5,700 ft. from N line and 820 ft. from E line of survey, H. Edwards Sur.	Waiting on cmt. to set; T.D. 3,571 ft.
East Texas Refining Co.'s No. 6 C. Fisher, 660 ft. NE of No. 3 and 660 ft. SE of No. 5, J. Ruddle Sur.	Rig up.
East Texas Refining Co.'s No. 3 D. G. Sparks, 330 ft. from W line of lease and 660 ft. SE of No. 1, H. Kirk Sur.	Rig up.
Foundation Oil Co.'s No. 3 L. Willis, 4,320 ft. from S line and 5,950 ft. from E line of survey, G. W. Hooper Sur.	Drlg. 3,000 ft.

(Continued on Page 36)


WYOMING
COLORADO
WESTERN KANSAS
KANSAS
NORTH OKLAHOMA
TEXAS PANHANDLE
OKLAHOMA CITY AREA
TULSA AREA
SEMINOLE AREA
SOUTHERN OKLAHOMA
OKLAHOMA
ARKANSAS
NEW MEXICO
NORTH CENTRAL TEXAS
CENTRAL TEXAS
EAST TEXAS
NORTH LOUISIANA
WEST TEXAS
LOUISIANA GULF COAST
TEXAS GULF COAST
SOUTHWEST TEXAS

Showing Why Tulsa Is WORLD HEADQUARTERS OF OIL PRODUCTION

Here is a map which presents FACTS! There is no opinion or guesswork about it.

The red lines indicate the number of substantial oil companies with production headquarters in the Tulsa Area, which are operating in each producing section of the Mid-Continent, Gulf Coast and Rocky Mountain areas. Each line represents a producing company with headquarters in the immediate Tulsa District.

Note that there is not a single producing area in which Tulsa companies are not operating, and that in the most important sections, like East Texas and Seminole, a tremendous number of Tulsa oil companies are active. In East Texas the number is 49, in Seminole, 50.

No other city in this area here shown—or in the world—even approaches this showing.

In interpreting the map, it should be understood that no radiating line in one producing area is a continuation of any line in another. Each radiating line belongs strictly and exclusively to its own area—but ALL point back to Tulsa as headquarters.

Tulsa has 40 oil companies which are ranked as "major companies", and, altogether, has 658 oil companies. If the Tulsa Area is included, Tulsa has 44 major oil companies. No other city in the territory here shown is headquarters for more than 14 major oil companies.

Tulsa's growth as an oil center is continuing apace. Within the past few months, four important oil companies, including two majors, moved headquarters to Tulsa, two of them from larger cities. And within the few years which preceded, several of Tulsa's greatest acquisitions were recorded.

The area here shown produces 71.74% of U. S. oil production, of which the Mid-Continent alone produces 62.73%.

Can there be any question that Tulsa's strength as the World's Oil Capital is increasing with every year?

The purchasing of all the companies indicated on this map is controlled in the immediate Tulsa district. Tulsa is the world's oil equipment buying center, purchases here totalling around $400,000,000 annually.

The oil equipment manufacturer considering a branch office or warehouse in the Southwest, should investigate thoroughly the facts about Tulsa. Write for any information you may wish, to the Tulsa Chamber of Commerce.

TULSA

Oil Capital of the World

Kangerga, top sand 3,658 feet, initial production 65 bbls. per hour through 1-inch tubing choke, total depth 3,692 feet.

Humble Oil & Refining Co.'s No. 4-A J. E. Sexton, top sand 3,716 feet, initial production 75 bbls. per hour through 1-inch tubing choke, total depth 3,775 feet. H. L. Hunt Production Co.'s No. 12-A R. W. Fair, top sand 3,652 feet, initial production 76 bbls. per hour through 1-inch tubing choke, total depth 3,675 feet. Mid-Kansas Oil & Gas Co.'s No. 31 W. T. Grissom, top sand 3,650 feet, initial production 98 bbls. per hour through 1-inch tubing choke, total depth 3,670 feet; same company's No. 15 E. E. Moores, top sand 3,638 feet, initial production 70 bbls. per hour through 1-inch tubing choke, total depth 3,730 feet. Rodgers & Rodgers' No. 2 A. J. and D. F. Deason, top sand 3,693 feet, initial production 60 bbls. per hour through 1-inch tubing choke, total depth 3,773 feet. Womack Oil Corp.'s No. 2 Arnold, top sand 3,654 feet, initial production 15,000,000 feet of gas, and slight show of oil, total depth 3,664 feet.

Smith County

Tex Jersey Oil Co.'s No. 5 S. S. Cooke, top sand 3,725 feet, initial production 60 bbls. per hour through 2-inch tubing choke, total depth 3,727 feet.

Upshur County

Humble Oil & Refining Co.'s No. 12 G. W. Johnson, top sand 3,682 feet, initial production 51 bbls. per hour through three-quarters inch tubing choke, total depth 3,706 feet. Mudge Oil Co.'s No. 6-A S. E. Richardson, top sand 3,665 feet, initial production 75 bbls. per hour through 2-inch tubing, total depth 3,695 feet. Sun Oil Co.'s No. 3 B. L. Lodin, top sand 3,659 feet, initial production 25 bbls. in one-half hour through 2-inch tubing choke, total depth 3,705 feet.

WILDCAT COMPLETIONS

Cherokee County

W. C. Hamilton and others' No. 1 Dr. P. E. Jones, top Pecan Gay 2,346 feet, base 3,715 feet, elevation 395 feet, dry and abandoned, total depth 4,090 feet, J. D. Hamilton Survey.

Hopkins County

Dilworth-Hagan and Ashby's No. 1 Logan, top Pecan Gap 1,460 feet, base 1,575 feet, top Woodbine series 3,174 feet, dry and abandoned, total depth 3,559 feet. A. C. Wetmore Survey. Pete Wiggins and others' No. 1 fee, top Pecan Gap 2,361 feet, base 2,492 feet, top Austin chalk 3,776 feet, base 3,955 feet, top Woodbine sand 4,457 feet, top Red Beds 4,481 feet, base 4,770 feet, top sand 4,770 feet, elevation 434 feet, dry and abandoned, total depth 4,866 feet, Nacogdoches University Lands Survey.

Morris County

Joiner & Harris Drilling Co.'s No. 1 Clayton Brown, dry and abandoned, total depth 1,500 feet, William M. Coffey Survey.

Van Zandt County

Petroleum Pipe Line Co.'s No. 3 Mrs. S McGee, dry and abandoned, total depth 1,245 feet.

Van Field—Van Zandt County

Pure Oil Co.'s No. 4 J. M. Martin, top sand 2,842 feet, initial production 155 bbls., total depth 2,967 feet.

West Texas Fields

(Continued from Page 32)

Co., top pay 2,525 feet, initial production 225 bbls. pumping, in 24 hours, total depth 2,882 feet.

Reeves County

F. McDorman and others No. 1 Ray Roberts, dry and abandoned, total depth 2,020 feet.

Ward County

Atlantic Oil & Producing Co.'s No. 1 T. H. Barrow (recompleted), top pay 2,463 feet, initial production 40 bbls. flowing through tubing, total depth 2,950 feet; same company's No. 1 R. H. Gill, top pay 2,410 feet, initial production 10 bbls. of oil and 10 bbls. of water, total depth 2,600 feet. W. A. Black and others' No. 1 Ann B. Gordon, top pay 2,290 feet, initial production 355 bbls. per day flowing through casing, total depth 2,485 feet. Stanolind Oil & Gas Co.'s No. 1 Whitlock and others, dry and abandoned, total depth 2,515 feet.

Pecos County

Eppenauer Drilling Co.'s No. 1 White-Baker, dry and abandoned, total depth 2,000 feet. Pecos County Crude Oil Purchasing Co.'s No. 5 Pecos Valley, top pay 1,526 feet, shot 20 quarts from 1,637-57 feet, initial production 10 bbls. in 24 hours, total depth 1,657 feet. J. M. Cooper and others' No. 1 Junaita B. Perry, dry and abandoned, total depth 2,305 feet.

East Central Texas Wildcats

(Continued from Page 33)

Gulf Production Co.'s No. 17 H. C. Alexander, 565 ft. W along projection of N line of lease from most northerly NW cor and 975 ft. S at right angles to projected line, Mary Van Winkle Sur. ..... Prepare to spud.

Gulf Production Co.'s No. 8 S. Davis, 330 ft. S and 106 ft. E of NW cor. of lease, W. P. Chisum Sur. .. Derrick.

Heyser & Heard's No. 2 Hindman-Guy, 5,140 ft. from S line and 2,000 ft. from W line of survey, G. W. Hooper Sur. ..... Derrick.

Magnolia Petroleum Co.'s No. 11 O. F. Smith, 583 ft. E of No. 10 and 583 ft. NW of No. 2, H. Edwards Sur. ..... Derrick.

B. F. Phillips' No. 3-B League, 330 ft. from W line of lease and 180 ft. from SW cor. of "B" lease, H. Rogers Sur. ..... Derrick.

Rabbit Creek Oil Co.'s No. 3 Elder, 350 ft. from W line and 73 ft. from S line of survey, John Wilkerson Sur. ..... Waiting on cmt. to set 3,507 ft.

Reddick & Hugus' No. 3 Smith, 150 ft. E of Smith's No. 2, William Castleberry Sur. ..... Rig up.

Reserve Petroleum Co.'s No. 3 A. Godfrey, midway between Nos. 1-A and 2-A, M. V. Winkle Sur. ..... Top sand 3,472 ft.; T.D. 3,475 ft.

A. D. Robinson's No. 1 Hilburn Estate, 1,199 ft. from S line and 5,320 ft. from W line of survey, J. Wilkerson Sur. ..... T.D. 3,530 ft.

Roster and Pendleton's No. 7-A Nicholson, 2,050 ft. from N line and 330 ft. from E line of survey, M. Mann Sur. ..... T.D. 3,676 ft.; swabbed dry; small show oil; S.D.

Shasta Oil Co.'s No. 3-B G. W. Richey, 150 ft. from W line and 318 ft. from S line of lease, C. Rhodes Sur. ..... Derrick.

Sinclair Prairie Oil Co.'s No. 3-B A. A. King, 660 ft. from N line and 315 ft. from W line of lease, M. McCurry Sur. ..... Moving in.

A. L. Slaughter's No. 1 R. B. White, 490 ft. from N line and 30 ft. from E line of survey, C. R. Alexandria Sur. ..... Fishing; T.D. 2,871 ft.

Stanolind Oil & Gas Co.'s No. 4 Jones, 1,068 ft. N and 378 ft. W of SE cor. of 30.58-ac. lease, G. W. Hooper Sur. ..... Coring 3,635 ft.

Steen Drilling Co.'s No. 6 Lodin, 330 ft. from S and W lines of 27.3-ac. lease, G. W. Hooper Sur. ..... Waiting on cmt. to set 3,700 ft.

Sun Oil Co.'s No. 12 J. W. Akin, 660 ft. from Nos. 5 and 6 and 330 ft. from S line of lease, William G. Painter Sur. ..... Derrick.

Sun Oil Co.'s No. 9 A. S. Morton, 330 ft. from N and W lines of lease, S. Baggett Sur. ..... Derrick.

Tide Water Oil Co.'s No. 20 M. B. Hughey, 175 ft. from N line and 1,525 ft. from W line of lease, J. Hillard Sur. ..... Derrick.

Yeager et al's No. 2 Howard, 90 ft. from N line and 2,350 ft. from E line of survey, Mary Scott Sur. ..... Waiting on cmt. to set 3,534 ft.

HENDERSON COUNTY

Campbell and Champlin's No. 1 R. S. Ansley, 105 varas S and 623 varas W of NE cor. of lease, 6 miles SE of Buffalo, N. H. Thompson Sur. ..... Location.

McElreath and Suggett et al's No. 1 Ferguson, 330 ft. out of most southerly NW cor. of 352.8-ac. tract, William P. Wyche Sur. ..... Drlg. 4,040 ft.

W. C. McGlothlin et al's No. 1 T. H. English, 330 ft. out of SE cor. of tract in Blk. No. 15, on 114-ac. tract, J. Henderques Sur. ..... Spudding.

HOPKINS COUNTY

Culberson & Lynch's No. 1 Louis Stribling, 150 ft. from NW cor. of tract and lease, Thomas Norris Sur. .. Rig up.

Mudge Oil Co.'s No. 1 T. R. Cargill, 330 ft. out of NE cor. of 64-ac. tract, 8 miles N of Sulphur Springs, John Hastings Sur. ..... Drlg. 1,200 ft.

HUNT COUNTY

Solar Exploration Co.'s No. 1 Smith, 210 ft. from E line and 370 ft. from S line of lease, William Glass Sur. ..... T.D. 1,500 ft.

KAUFMAN COUNTY

J. M. Scott et al's No. 2 Pannill, 2,550 ft. from NE line and 6,000 ft. S of Texas Midland Railroad, A. Cherino Sur. ..... Drlg. 2,425 ft.

LEON COUNTY

Bateman et al's No. 1 A. C. Carlyle, 150 ft. out of NE cor. of survey, Mary Ellem Sur. ..... Drlg. 3,475 ft.

Shell Petroleum Corp.'s No. 1 Boggs, center of 123.5-ac. tract, John Carter Sur. ..... Drlg. 4,830 ft.

LIMESTONE COUNTY

C. C. Curtis et al's No. 1 Emma Daniels, 150 ft. from W line and 150 ft. from S line of 42.5-ac. tract in Pedro Varela Sur. ..... Waiting on cmt. to set 60 ft.

RUSK COUNTY

Barnsdall Oil Co.'s No. 4 T. H. Gill, W offset to McDonald's No. 2 Brightwell, R. W. Smith Sur. ..... Rig up.

Bay Oil Co.'s No. 7 D. N. Peterson, 440 ft. from S line and 735 ft. from W line of lease, J. S. Carrithers Sur. ..... Waiting on cmt. to set; T.D. 3,580 ft.

Blackwell Oil & Gas Co.'s No. 8 Stone, 330 ft. from S and W lines of 53.04-ac. tract, M. J. Pru Sur. .... Waiting on cmt. to set; T.D. 3,638 ft.

Bristol-Duncan-White's No. 1 Womack, 2,760 ft. from N line and 80 ft. from E line of survey, I. Moore Sur. ..... Waiting on cmt. to set; T.D. 3,622 ft.

A. P. Cary's No. 4 Ras Redwine, 330 ft. from S and W lines of lease, M. V. Pena Sur. ..... Derrick.

Cordova Union Oil Co.'s No. 1-D C. O. Christian, 1,490 ft. from N line and 1,830 ft. from W line of survey, D. Clark Sur. ..... Waiting on standard rig; T.D. 3,740 ft.

Crabtree et al's No. 6 Giles, 150 ft. from S line and 330 ft. from W line of lease, M. J. Pru Sur. ..... Drlg. 522 ft.

Cullen Oil Co.'s No. 1 Giles, 3,610 ft. from N line and 1,900 ft. from E line of survey, M. J. Pru Sur. .... Swabbing; T.D. 3,716 ft.

Devonian Oil Co.'s No. 6 W. P. Moore, 1,144 ft. N of SE cor. and 354 ft. from E line of lease, J. Womack Sur. ..... Waiting on cmt. to set; T.D. 3,710 ft.

East Shore Oil Co.'s No. 8 Fox, 600 ft. due S of No. 1, A. Carmack Sur. ..... Drlg. 1,934 ft.

Griffin & Barnes' No. 1 fee, 13 ft. from S and W. lines of 2-ac. tract, J. B. De Cadena Sur. ..... Waiting on cmt. to set.

Gulf Production Co.'s No. 8 Murphy, 987 ft. from S line and 280 ft. from W line of 79.56-ac. tract, F. Cordova Sur. ..... Bldg. derrick.

Humble Oil & Refining Co.'s No. 18 J. N. Peterson, 330 ft. from N line and 1,097 ft. from W line of 65-ac. tract and lease, I. Ruddle Sur. ..... Rig up.

Hunt Production Co.'s No. 1 H. C. Maxwell, 500 ft. from N line and 330 ft. from W line of tract, F. Cordova Sur. ..... Derrick.

H. L. Hunt's No. 5-C Joe Lee, 710 ft. from S line and 330 ft. from E line of lease and survey, J. Lindley Sur. ..... Drlg. 1,804 ft.

H. L. Hunt's No. 3 B. F. Maxwell, 390 ft. from N line and 1,500 ft. from E line of survey, R. H. Penny Sur. ..... Swabbing; T.D. 3,775 ft.

Jordan & Ramsey's No. 1 L. W. Prior, 330 ft. from N line and 607 ft. from E line of 53-ac. lease, Walker Pettit Sur. ..... T.D. 2,841 ft.

Lion Oil & Refining Co.'s No. 11-B H. Brooks, 4,960 ft. from S line and 1,410 ft. from E line of survey, M. J. Pru Sur. ..... Waiting on cmt. to set; T.D. 3,546 ft.

Magnolia Petroleum Co.'s No. 10 C. C. Still, 692 ft. E of No. 6, M. McCabe Sur. ..... Derrick.

Magnolia Petroleum Co.'s No. 11 C. C. Still, 330 ft. from N line of lease and 762 ft. E of No. 10, M. McCabe Sur. ..... Location.

McDonald Bros.' No. 3 Brock Estate, 150 ft. from S line and center of E and W lines of lease, R. W. Smith Sur. ..... Rig up.

Joe Marr Drilling Co.'s No. 1 M. Lee, 459 ft. S and 330 ft. W of SW cor. of Stanolind's 100-ac. Lacy tract, J. H. Sparks Sur. ..... Drlg. 2,730 ft.

C. L. McMahon's No. 6 S. S. Laird, 103 ft. from N line and 162 ft. from W line of lease, R. W. Smith Sur. ..... Set surface csg. 104 ft.

Martin and Cockburn's No. 4 J. P. Cansler, 1,620 ft. from N line and 1,130 ft. from W line of survey, E. Collard Sur. ..... Drlg. 2,300 ft.

George B. McCamey's No. 2 J. Minchew, 1,600 ft. from S line and 170 ft. from E line of survey, H. B. Dance Sur. ..... Drlg. 2,530 ft.

Charles McDonald et al's No. 2 Brightwell, 700 ft. from N line and 2,200 ft. from E line of survey, R. W. Smith Sur. ..... Fishing; T.D. 3,692 ft.

Mid-Kansas Oil & Gas Co.'s No. 12 M. C. DeQuerin, 953 ft. from S line and 300 ft. from W line of lease, J. B. De Cadena Sur. ..... Drlg. 2,420 ft.

Mid-Kansas Oil & Gas Co.'s No. 14 E. E. Moores, 140 ft. from S line and 1,360 ft. from E line of survey, M. J. Pru Sur. ..... Drlg. 1,234 ft.

Walker Murray et al's No. 1 W. H. Arnold, 330 ft. from S and W lines of 50-ac. tract, Levi N. Sparks Sur. ..... Fishing; T.D. 3,722 ft.

Patterson Drlg. Co.'s No. 3 Brock Estate, 2,320 ft. from N line and 100 ft. from E line of survey, R. W. Smith Sur. ..... Derrick.

Sun Oil Co.'s No. 11 J. R. Beall, 6,220 ft. from S line and 4,400 ft. from W line of survey, W. P. Chisum Sur. ..... Drlg. 1,550 ft.

Stroube and Stroube's No. 2 R. O. Russell, 150 ft. from W line and 202 ft. from E line of 16.3-ac. tract, T. J. Martin Sur. ..... Waiting on cmt. to set; T.D. 3,762 ft.

Tide Water Oil Co.'s No. 6 Laverett, 330 ft. from S line and 1,560 ft. from E line of lease and survey, W. W. Simms Sur. ..... Drlg. 2,906 ft.

Tex-Jersey Oil Co.'s No. 4-A W. P. Keeling, 275 ft. N and 10 ft. W of SE cor. of lease, F. Cordova Sur. ..... Rig up.

Weaver-Crim Corp.'s No. 2-B Bean, 323 ft. from S line and 1,270 ft. from W line of survey, Mary Cogswell Sur. ..... Derrick.

SMITH COUNTY

British-American Oil Co.'s No. 5 M. L. Thompson, 3,290 ft. from N line and 1,830 ft. from E line of survey, I. Moore Sur. ..... Derrick.

H. L. Hunt's No. 11-A R. W. Fair, 1,130 ft. from S line and 330 ft. from W line of survey, R. McAnnulty Sur. ..... Waiting on cmt. to set; T.D. 3,627 ft.

Hunt Production Co.'s No. 6-B R. W. Fair, 990 ft. from S line and 800 ft. from E line of 138-ac. tract, J. Vargas Sur. ..... Rig up.

Hunt Production Co.'s No. 7-B R. W. Fair, 630 ft. from N line and 875 ft. from W line of 138-ac. tract, J. Vargas Sur. ..... Location.

Long Drilling Co.'s No. 3 G. A. Turner, D. W. Campbell Sur. ..... Derrick

Magnolia Petroleum Co.'s No. 9 J. R. Wright, 330 ft. from S line and 330 ft. from E line of lease, J. Vargas Sur. ..... Derrick.

Alex McCutcheon's No. 4 Stone, 990 ft. from N line and 960 ft. from W line of survey, D. Shaw Sur. .... Derrick.

Mid-Kansas Oil & Gas Co.'s No. 20 J. H. Sharp, 1,037 ft. from S line and 990 ft. from E line of lease, M. D. L. S. Coy Sur. ..... Derrick pattern.

Reed et al's No. 2 T. O. Wright, 150 ft. from W line and 50 ft. from N line of lease, J. Vargas Sur. ..... Drlg. 2,400 ft.

Texas Co.'s No. 10 Blackwell, W offset to Hamilton's No. 6 Gambrell, James Jordan Sur. ..... Waiting on cmt. to set; T.D. 3,650 ft.

UPSHUR COUNTY

Conservative Oil Co.'s No. 7 Victory, 330 ft. from E line of lease and 660 ft. N of No. 6, E. A. J. Evans Sur. ..... Drlg. 1,100 ft.

W. V. Greer's No. 1 A. B. Mackey, 3,400 ft. from N line and 4,080 ft. from E line of survey, H. Pineda Sur. ..... Drlg. 2,900 ft.

Humble Oil & Refining Co.'s No. 9 G. W. Johnson, 535 ft. from E line and 221 ft. from most northerly S line of lease, G. W. Hooper Sur. ..... Location.

Mudge Oil Co.'s No. 3 Bland, 330 ft. from N and E lines of 31.6-ac. lease, G. W. Hooper Sur. ..... Derrick.

Paul Pewitt's No. 1 A. J. Sanders, 330 ft. from W line of survey and center of N and S lines of lease, T. Allen Sur. ..... Rig up.

Peckham and Meadows' No. 1 L. P. League, 1,200 ft. from N line and 330 ft. from W line of survey, H. F. Rodgers Sur. ..... Rig up.

Perrin & Fell's No. 3 William Landers, 330 ft. from S line and 330 ft. from W line of 64.34-ac. tract, G. W. Hooper Sur. ..... Drlg. 3,504 ft.

Rancho Oil Co.'s No. 5 Moyer, 330 ft. from W line of lease and midway between Nos. 2 and 3, A. T. McGee Sur. ..... Drlg. 3,490 ft.

Rosier and Pendleton's No. 5-A Satterwhite, 330 ft. from S line and 660 ft. E of No. 4, D. Sanches Sur. .. Rig up.

Twin Oil Co.'s No. 8 Bonner, 1,089 ft. from S line and 1,020 ft. from W line of survey, J. McRae Sur. ..... Waiting on cmt. to set; T.D. 3,626 ft.

VAN ZANDT COUNTY

Everett Drilling Co.'s No. 1 L. Tunnell, 150 ft. out of SW cor. of 72.4-ac. tract, 4 miles SW of Van, M. Moss Sur. ..... Drlg. 2,000 ft.

Peden & Olsen's No. 2 W. S. Branson, 725 ft. from N line and 150 ft. from W line of tract, M. Gross Sur. ..... Drlg. 600 ft.

Pure Oil Co.'s No. 4 J. H. Leonard, 275 ft. from N and 200 ft. E of 47.5-ac. tract, M. Gross Sur. ..... Location.

Ray Drilling Co.'s No. 1 J. W. Mallory, 1,150 ft. from S line and 150 ft. from W line of 317-ac. tract, John Walling Sur. ..... Derrick.

Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ..... T.D. 1,284 ft.

Wildcat Operations in West Texas

(Continued from Page 32)

FISHER COUNTY

Condor Pet. Co.'s No. 1 Holley, 1,170 ft. W and 660 ft. from N lines of E half, Sec. 6, Blk. R, W. E. Richardson Sur. ..... Location.

Cranfill & Reynolds' No. 3 George, 330 ft. from N and W lines of NE of Sec. 200, Blk. 1, B.B.B.&C. Sur. ... T.D. 3,115 ft.; top lime 3,093-3,115 ft.; treating with 1,000 gallons of acid.

Southern Oil Co.'s No. 1 Beavers, 330 ft. from W and 660 ft. from S of S half of SW Sec. 193, B.B.B.&C. Sur. ..... T.D. 3,102 ft.; swabbed 50 bbls. in 24 hrs.; will treat with acid.

Southern Oil Co.'s No. 1-A Pardue, 2,310 ft. from S and 990 ft. from E lines of Sec. 202, B.B.&C. Sur. ..... S.D. 560 ft.

GLASSCOCK COUNTY

Helms et al's No. 1 Holgar, 330 ft. from N and E lines of Sec. 18, Blk. 34, Twp. 3s, T.&P.R.R. Sur. ..... S.D. for casing; T.D. 2,037 ft.

HOWARD COUNTY

Crosby Drlg. Co.'s No. 1 Leatherwood-Satterwhite, C of SE of NW, Sec. 26, Blk. 33, Twp. 1n, T.&P. Sur. .... S.D. 700 ft.

Donnelly & Norman's No. 1 Magnolia Petroleum Co. (Bell), 330 ft. from N line and 330 ft. from W line of the N half of SW of Sec. 12, T.&P.R.R. Sur., Blk. 30, Twp. 1s ..... Location.

L. C. Harrison's No. 4 L. C. Denman, 2,475 ft. from the E line and 2,325 ft. from S line of Sec. 10, T.&P.R.R. Sur., Blk. 30, Twp. 1s ..... Prepare to test; T.D. 3,008 ft.

JONES COUNTY

Iver's No. 1 Odom, 200 ft. from S and 170 ft. from W of N 320 acres, G. Zumwalt Sur. ..... T.D. 485 ft.

LOVING COUNTY

Appenauer Drlg. Co.'s No. 1-A Victor, 330 ft. from SW and 338 ft. from SE of NW of N half Sec. 4, Blk. 2, W.&N.W. Sur. ..... Rigging up standard tools

PECOS COUNTY

A. & M. Pet. Co.'s No. 1 University, 1,725 ft. from S line and 330 ft. from E line of Sec. 31, Blk. 16, University Sur. ..... S.D. for casing; T.D. 1,624 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 10-C University, 2,025 ft. from S and 376 ft. from W, Sec. 35, Blk. 9 ..... Running tubing; T.D. 8,550 ft.

Big Lake Oil Co.'s No. 11-C University, 2,300 ft. from S line and 2,140 ft. from E line, Sec. 12, Blk. 2, University Sur. ..... Drlg. 8,370 ft.

Big Lake Oil Co.'s No. 12-C University, 938 ft. from N, 740 ft. from E line of Sec. 12, Blk. 2, University land ..... Drlg. 2,290 ft.

Continental Oil Co.'s No. 8-B University, 1,200 ft. from S and 1,775 ft. from W, Sec. 36, Blk. 9 ..... Produced 800 bbls. on 18th; T.D. 8,695 ft.

Continental Oil Co.'s No. 9-B University, 1,900 ft. from S line, 1,805 ft. W of E line of Sec. 39, Blk. 9, University Land Sur. ..... Drlg. 2,600 ft.

J. P. Williams et al's No. 1 Scott, 1,650 ft. from N and 330 ft. from W, Sec. 179, Blk. 1, T.&P. Sur. ..... Drlg. 2,310 ft.

REEVES COUNTY

Freels et al's No. 1 J. B. Greeman, 330 ft. from NE and 2,310 ft. from S line of Sec. 21, Blk. 3, H.&G.N. Sur... Running csg.; T.D. 1,106 ft.

Merry Brothers & Perrin's No. 1 H. H. Johnson, 1,015 ft. from S and W lines of Sec. 5, Blk. 4, H.&G.N. Sur.... Drlg. 4,335 ft.

RUNNELS COUNTY

Mann's No. 1 T. B. Wade, 330 ft. from E line and 150 ft. from S line of 75-acre tract, Blk. 10, Norvel Travis Sur. No. 533 ..... Fishing 2,200 ft.

Simmons et al's No. 1 H. E. Wade, 150 ft. from S and 1,650 ft. from W line, Subdv. No. 8, Norvel Travis Sur. No. 533 ..... Derrick.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, Sec. 39, Blk. M, G.H.&S.A. Sur. ..... Drlg. 6,130 ft.

TAYLOR COUNTY

Crissman et al's No. 1 City of Abilene, 1,300 ft. from N and 1,250 ft. from E lines of Sec. 66, Bal Sur. ..... Location.

UPTON COUNTY

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 660 ft. from W, Sec. 197, Blk. F, C.C.S.D.&R.G.N.G.... Drlg. 4,980 ft.

WARD COUNTY

Atlantic Oil & Prod. Co.'s No. 3 W. D. Johnson, 1,650 ft. from NW line of the NE half of Sec. 9, H.&T.C. Sur., Blk. 24 ..... Location.

Atlantic Oil & Prod. Co.'s No. 4 W. D. Johnson, 330 ft. from NE line and 990 ft. from SE line of NE half of Sec. 9, H.&T.C. Sur., Blk. 24 ..... Location.

George Bentley et al's No. 1 C. Bergman, 330 ft. from NE line and 2,310 ft. from NW lines of Sec. 26, Blk. 5, H.&T.C. Sur. ..... Fishing for tools; T.D. 2,647 ft.

George Bentley et al's No. 1 A. Emory, 1,650 ft. from NE line and 2,310 ft. from NW line of Sec. 26, Blk. 5, H.&T.C. Sur. ..... T.D. 2,301 ft.

Appenauer Drlg. Co.'s No. 1 University, 330 ft. from N and 440 ft. from E of S half of Blk. 16 ..... Moving in standard tools; T.D 1,515 ft.

Gulf Prod. Co.'s No. 30 O'Brien, 990 ft. from S line and 660 ft. from W line of Sec. 6, Blk. F, G.&M.M.B.&A. Sur. ..... T.D. 2,850 ft.; plugged back to 2,654 ft.; pumped 27 bbls. of oil first 24 hours.

S. A. Thompson et al's No. 3 W. D. Johnson, 330 ft. from NE line and 1,650 ft. from NW line of the SW half of Sec. 9, H.&T.C.R.R. Sur., Blk. 24 ..... Location.

S. A. Thompson et al's No. 4 W. D. Johnson, 330 ft. from NE line and 2,310 ft. from NW line of the SW half of Sec. 9, H.&T.C.R.R., Blk. 24 ..... Location.

WINKLER COUNTY

Colonial Oil Co.'s No. 3 State Scarborough, 990 ft. from W and 102½ ft. N of the NE cor. of Sec. 1, School Blk. 77, located in Sec. 1, Blk. W.F. ..... Rig up.

Sid Richardson's No. 3 John Scally, 2,310 ft. from the N line and 330 ft. from the W line of Sec. 94, G.&M.M.B.&A. Sur. ..... Drlg. 1,225 ft.

Wildcat Operations in Texas Panhandle

Week Ending July 31

CARSON COUNTY

Company, well, farm name, section and block—	Remarks:
Texas Co.'s No. 2-B Garner, 990 ft. N and E, Sec. 95, Blk. 4, I.&G.N. Sur.	C.O.; T.D. 3,040 ft.

DEAF SMITH COUNTY

Western Union Oil Co.'s No. 1 Farwell, Sec. 18-3n-2e...	U.R. 1,520 ft.

GRAY COUNTY

Charles Black's No. 1 fee, 330 ft. from W, 661 ft. from S line of SW Sec. 45, Blk. 25, H.&G.N. Sur.	O.W.D.D.; T.D. 2,965 ft.
Bell O. & G. Co.'s No. 1 Webb, 330 ft. from N and E lines of Sec. 61, Blk. 25, H.&G.N. Sur.	Rig.
British American Oil Co.'s No. 3 Phillips, 330 ft. from S and W lines of W½ E½ Sec. 27, Blk. 3, I.&G.N. Sur.	Drlg. 2,800 ft.
Chism et al's No. 1 J. M. Carpenter, 330 ft. from N line, 330 ft. from E line of SE Sec. 37, H.&G.N. Sur., Blk. 25	Cellar.
Continental Oil Co.'s No. 4 Finley, Sec. 32, Blk. 2-B, H.&G.N. Sur.	O.W.D.D.; T.D. 2,957 ft.
Danciger O. & R. Co.'s No. 3 Wright, 990 ft. from S, 330 ft. from W lines of Sec. 13, Blk. 3, I.&G.N. Sur...	Rig up.
Denworth Oil Co.'s No. 2-B Webb, 330 ft. from N and W lines, SE NW Sec. 61, Blk. 25, H.&G.N. Sur.	T.D. 2,639 ft; to test.
Gulf Prod. Co.'s No. 3-A Catlin, 330 ft. from S and W lines of Gulf lease in NE Sec. 57, Blk. 3, I.&G.N. Sur.	Swbd. 900 bbls. second 24 hrs. after shot; T.D. 3,153 ft.
Henderson et al's No. 1 Husselby, 330 ft. S and E, SW SW Sec. 11, Blk. A-9, H.&G.N. Sur.	Rig.
Mazda-Shell's No. 4 Coombs-Worley, 990 ft. from N line, 330 ft. from E line, Sec. 35, Blk. 3, I.&G.N. Sur.	Rig.
Phillips Pet. Co.'s No. 7 Jackson, 990 ft. from E, 330 ft. from S lines of S½ SE Sec. 88, Blk. 2-B, I.&G.N. Sur.	Drlg. 1,800 ft.
Phillips Pet. Co.'s No. 1 Palmer, 330 ft. from S and E lines of E 80 acres of Sec. 31, Blk. 3-B, H.&G.N. Sur.	Old well to be drilled deeper; T. D. 2,816 ft.
Phillips Pet. Co.'s No. 3 Woods, 330 ft. from S and W lines of SW of Sec. 13, Blk. 3, I.&G.N. Sur.	Old well to be drilled deeper; T. D. 2,874 ft.
Sinclair Prairie Oil Co.'s No. 3 P. A. Coomley, 1,800 ft. from S, 2,618 ft. from W lines of S 245 acres of Sec. 57, Blk. 3, I.&G.N. Sur.	Rig up.
Skelly Oil Co.'s No. 1 L. H. Webb, 990 ft. from E line, 330 ft. from N line of S½ of Sec. 61, H.&G.N. Sur., Blk. 25	Rig up.
Sun Oil Co.'s No. 2-B Combs-Worley, 330 ft. from S line, 990 ft. from E line of SW of Sec. 34, I.&G. N. Sur., Blk. 3	Cellar.
Warner Oil Co.'s No. 7 Webb, 660 ft. from S and W of W 30 of N½ Sec. 42, Blk. 25	T.D. 2,265 ft.
Wilcox O. & G. Co.'s No. 23 Combs-Worley, 990 ft. from E line, 330 ft. from N line of Sec. 35, I.&G. N. Sur., Blk. 23	Rig up.

HUTCHINSON COUNTY

Dixon Creek Oil Co.'s No. 1 Hale, 660 ft. E of Alexander's No. 1 Cockrell, Sec. 4, Blk. M-21, T.C.R.R..	Shot with 90 qts. 2,986-3,055 ft.; T.D. 3,055 ft.
E. W. Means et al's No. 1 Pond, 330 ft. S and E, N½ of E 165½ acres, Sec. 2, Blk. M-21, T.C.R.R. Sur. ..	Swbd. 75 bbls. first 5 hrs.; T.D. 3,063 ft; S.D. for P.L. connections.
H. Stekol's No. 4 G. A. Whittenburg, 450 ft. from N line, 990 ft. from W line, Sec. 38, Blk. M-23, T.C. R.R. Sur.	Swbd. 75 bbls.; S.D. to test; T.D. 3,027 ft.

RANDALL COUNTY

Woolsey & Devore's No. 1 Below, 330 ft. N, 1,320 ft. E of NE, Sec. 85, Blk. 2, A.B.&M. Sur.	S.D. 3,035 ft.

WHEELER COUNTY

Bell O. & G. Co.'s No. 1 Evans, 330 ft. N and E of NW Sec. 51, Blk. 24, H.&G.N. Sur.	Pay 2,396-2,408 ft. and 2,426-28 ft; averaged 90 bbls. per day; T.D. 2,428 ft.
Martin & Dubose's No. 1 Grogan, C NE Sec. 57, Blk. 23, H.&G.N. Sur.	Drlg. 1,360 ft.
Mid-Kansas O. & G. Co.'s No. 1 Husselby, 330 ft. from S and E lines of SW Sec. 70, Blk. 24, H.&G.N. Sur...	Spudding.
Piney O. & G. Co.'s No. 1 J. P. Koons, 330 ft. from E line, 330 ft. from S line of E½ NE Sec. 48, H.& G.N. Sur., Blk. 24	Machine.
Skelly Oil Co.'s No. 1 M. Husselby, 330 ft. from S line, 330 ft. from W line of E½ of Sec. 70, H.&G.N. Sur., Blk. 24	Rig up.

DISTRIBUTE

WORLD'S FAIR INFORMATION BUREAU

MOTOR TO THE ORLD'S FAIR

An automobile trip to the World's air will cost 1¾ cents a mile for gas- oline, lubricating oil and greasing jobs, -third of a cent a mile for each person five in the car.

t housing and parking facilities are avail- od on the outskirts of Chicago. en major Federal or state highways, all radiating in all directions from Chicago. been designated as official i's Fair routes. Each of these arked for a distance of 75 miles a Chicago with a gayly colored a, symbolic of one of the major hibits at the Exposition. The map ows routes and markings.

Official Information On each of these official routes, 20 miles from Chicago, is an attrac- tive booth marked "Official Infor- mation Booth." Here the visitor may obtain tions on how to reach any point in Chicago as well as all information regarding living accommodations and rates in the city.

If the motorist plans to stop at a motor village all information will be given him as to locations, prices, etc. When he reaches the village he will find clean and sanitary accommodations at a rate approximating $1 a day per person.

Provision has been made for parking cars under guard, for cooking facilities, baths and supervised playgrounds for children.

Motor Villages Chicago is encircled by a ring of mo- tor villages. Those meeting requirements of the Exposition bear a blue and white badge marked "Motor Village Approved by A Century of Progress, Chicago." These villages will accommodate as high as 5,000 persons per night each. The largest are arranged in form of apart- ment buildings, each apartment with private bath, toilet and lavatory. They have every hotel facility and convenience, being completely furnished and cleaned daily and all linens changed daily. Rapid transportation facilities are available from these villages to gates of the Fair. They have fire and police protection.

The Chicago Motor Club, 66 East South Water St., Chicago, has a list of all motor villages with details information as to service and facilities of each.

Rooms in hotels range from $1.50 to $5 per day. Rooms in private homes, boarding houses and resi- dential hotels average $1 to $2 per night single, and $1 to $3 double.

There are not any special restrictions on automo- bile drivers in Chicago. All out-of-state licenses are recognized and no licenses for drivers are required of visitors.

Charges at the Fair Admission to the Fair Grounds is 50 cents for adults, 25 cents for children. This admission covers 85 per cent of the $25,000,000 represented in the Exposition ex- hibits, and includes 85 exhibitions buildings and 82 miles of exhibits.

Admission to the concessions or amusements—60 in number—ranges from 10 to 50 cents apiece. Meals are obtainable in the Fair Grounds with sandwiches costing 5 and 10 cents each.

Never have such elaborate arrangements been made for caring for children. A 5-acre tract called En- chanted Island, or official children's playground, is a veritable story-book fairyland with nurses and attendants to care for children while the parents are viewing sights of the Fair. Amuse- ments include a magic mountain, min- iature zoo, children's theater, trained animals and clowns, fairy princesses, giants, and everything else to delight the youngster Grounds. One lot will accommodate 7,000 cars. Ample parking facilities are available at the Fair

THIS FOLDER

Display this Sign - at Your Stations . . .

Millions of people will be journeying to the World's Fair during the next few months. Some will go 300 miles and return—some 2,000 miles and return.

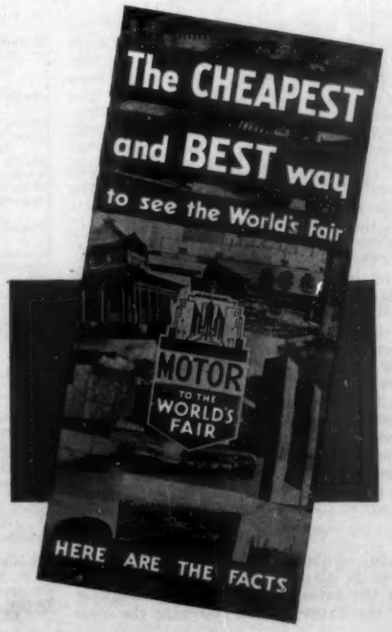
Will they go by train, or by automobile?

The railroads are shouting, "Travel by Train!" They are doing a wonderful publicity job, with posters and folders. They are making it appear very inviting to go by train. They are wise. They know the power of advertising and are taking advantage of it.

The Oil Industry failed to get organized for this purpose, as did the railroads.

It is not too late! A big and effective job can yet be done—and with the greatest ease —if the industry will simply *use* the plan which has been offered it—will simply use the station sign and 4-page information folder shown here.

We produced this folder because it is the most economical and most effective way to sell the motoring public on driving to Chicago. *About 6 of these folders can be handed out to 6 motorists, for a single penny.* We are printing these folders on The Oil and Gas Journal presses, practically at cost. Price, in quantities from 100,000 to 1,000,000 ranges from $2.83 per thousand down to $1.55.



The signs, printed on paper sheets approximately 18x22 inches, can be had in quantities ranging from 5,000 to 100,000, at prices from $16.50 down to $9.65 per thousand.

A number of important refiners are using this material in a big way. One single refiner ordered 2,000,000 folders. But by no means *ALL* refiners are taking action.

EVERY FILLING STATION IN AMERICA SHOULD BE HANDING OUT THIS FOLDER!

We have done our part. Now, you do yours!

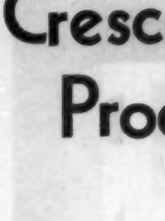
MOTOR-TO-CHICAGO NATIONAL CAMPAIGN

Care of The Oil and Gas Journal, TULSA, OKLAHOMA.

Crescent Pool, Logan County, Adds Important Producing Area to the Many in Oklahoma

By W. A. SPINNEY
Staff Correspondent, Oklahoma Fields

The production of Oklahoma in the week ending July 29 fell off 20,911 bbls. compared with the previous seven days' output. The Seminole Field produced an average of 114,895 bbls., Oklahoma City 245,390 bbls., and the remainder of the State 240,335 bbls., making a total of 600,620 bbls. The production of the previous week was 621,531 bbls. per day.



The average daily production of the Oklahoma City Field was 36,506 bbls. less than that of the week before.

Following are the figures for the average daily production of prominent pools in the weeks ending July 29 and July 22:

Pool—	July 29	July 22
Bowlegs	12,865	13,335
Bristow	11,100	11,229
Burbank	9,900	10,100
Carr City	11,970	9,395
Earlsboro	15,290	12,335
East Earlsboro	25,390	20,300
South Earlsboro	2,640	1,555
Little River	18,815	21,295
East Little River	2,435	1,215
Oklahoma City	245,390	281,895
Seminole City	11,320	13,945
East Seminole	810	1,500
Searight	2,535	2,200
Maud	1,575	1,540
Mission	9,250	6,650
Lucien (Wentz)	4,725	(*)
Cushing-Shamrock	13,175	13,115
St. Louis-Pierson	23,400	23,550
Tatums	10,750	10,500
Other pools	167,285	167,876
Total Oklahoma	600,620	621,531

*Carried under "other pools."

An Important New Pool

The opening of a new pool near Crescent, in Logan County, has stimulated activity in that area and there are now five operations surrounding the discovery well and more are expected soon. The Sinclair Prairie Oil Co. staked three locations during the past week. They are respectively in the NE cor. SW, Section 28-17-4w, NE cor. NW Section 28-17-4w and SW cor. NE Section 27-17-4w.

The first 24-hour gauge of the discovery well, Gypsy Oil Co. and Carter Oil Co.'s No. 1 Miller, in Section 28-17-4w, was 5,726 bbls. It produces from the Wilcox sand at 6,120-41 feet. The second 24-hour gauge was 5,430 bbls. The gas was estimated at 3,000,000 to 6,000,000 feet per day.

Lease and royalty trading has been active in the vicinity of this well. The Carter Oil Co. purchased the interests of the Ramsey Petroleum Co. and W. L. Kistler, in the N half NW, Section 27-17-4w; S half SW, Section 22-17-4w, and in the NW Section 21-17-4w. Sinclair Prairie Oil Co. purchased the N half NW, Section 16-17-4w, and the N half NE, Section 35-17-4w. Gypsy Oil Co. purchased the S half NE, Section 32-17-4w. Most of the royalty trading was in Sections 15, 21, 22 and 28-17-4w.

The discovery well in the Crescent area flowed a total of 21,290 bbls. of oil before it was shut in. The first day's gauge was 5,726 bbls., the second 5,430 bbls., the third 5,386 bbls. Then in 19 hours it made 4,645 bbls. and on its fifth day it made 1,107 bbls. in five hours.

Tatums a Busy Area

In southern Oklahoma the Tatums area in Carter County leads the play. In the extension area to the northwest of the Tatums Field, following the completion of the Carter Oil Co.'s No. 1 Perkins, SE cor. NW SW, Section 3-1s-3w, which made 476 bbls. of oil in 24 hours from 2,740-2,845 feet, a number of lease deals have been made.

E. B. Cox and Jake L. Hamon paid $500 an acre for a 2-acre school land tract in the extreme NW cor. NE NW, Section 3-1s-3w, and staked a location on this tract.

W. Neustadt's No. 1 fee, NE cor. SW SW, Section 3-1s-3w, is a new location. McFarland Oil Co.'s No. 1 Carter, NW cor. SW, Section 13-1s-3w, is a rig.

K-D Drilling Co. and others' No. 4 Burton, SW cor. NW, Section 30-1s-2w, in the Tatums Pool, made 325 bbls. of oil in six hours from sand series at 2,280-2,441 feet. The same company's No. 5 Burton, NW cor. SW NW, Section 30-1-2w, swabbed 25 bbls. of oil in two hours from sand series at 2,218-2,362 feet and testing continued.

Lloyd Oil Co.'s No. 2 Majors, NE cor. SW SE, Section 25-1s-3w, swabbed 618 bbls. of oil in 24 hours and was completed in sand at 2,534-2,700 feet. A cellar has been dug for No. 3 Majors, NE cor. NW SE, Section 25-1s-3w.

Potential of 34,537 Bbls.

A test of the 176 wells in the Tatums Pool shows a potential of 34,537 bbls. a day on a 24-hour gauge, which was completed during the week, according to an announcement of the proration department. Only one well in the field failed to make a proration test, it being shut down because of mechanical trouble.

The last previous potential was 60,000 bbls. a day. It was made under the old rules by Ray M. Collins, former state oil umpire. It was not announced whether there would be a change in the allowable rules in the field.

Test in Kingfisher County

J. A. Owens and others' No. 1 Frakes, SW cor. NE SW, Section 16-15-6w, in Kingfisher County, is a new wildcat location, and digging cellar, near the townsite of Reading. The owners of this location have a block of leases amounting to 6,000 acres and they plan to drill the test to 7,000 feet. Work is expected to start as soon as sufficient water can be obtained for drilling purposes.

The location is about 12 miles west of Shell Petroleum Corp.'s No. 1 Faulkner, C SE NW, Section 11-15-4w, Logan County, which found water in the Wilcox sand and is now shut down at 6,707 feet with 4,500 feet of water standing in the hole.

Oklahoma County Wildcats

In the Messer area of Oklahoma County, H. E. Rapp and others' No. 1 Price, C E half NE SW, Section 19-14-3w, has landed surface casing at 152 feet and was preparing to make hole again. This interesting test is north of the Mid-Kansas Oil & Gas Co.'s No. 1 Messer, which was completed in 1930 and has been shut in since.

Other tests in the vicinity include the W. T. Huston and others' No. 1 Ketchum, C W half NE SE, Section 32-14-3w, which was a rig building. It is expected to spud in a few days.

In the southeast corner of the county the Midcontinental Co.'s No. 1 Edwards, C SE SE, Section 19-11-1, near Newalla, was drilling at 2,000 feet.

Oil in Southeastern Pontotoc

What may develop into a pool was discovered in southeastern Pontotoc County during the week. E. H. Moore and others' No. 1 Wirick, SE cor. SW Section 29-2-7, found an oil sand at 2,640-41 feet, where it was shut down to land and cement casing, preparatory to making a production test of the oil showing.

Considerable free oil rose in the hole. It tested 36 gravity and is the first oil showing within about 30 miles of the location. The discovery is within a mile southeast of the Fitts gas pool, which was opened and discovered by W. H. Delaney about a year ago.

The sand at 2,640-41 feet yielded about 75 feet of oil in the hole and was then exhausted. Drilling was resumed and another oil showing was found at 2,704-06 feet. On the latest report it was drilling at 2,728 feet.

The discovery test was drilled on a block of 1,800 acres surrounding the well. Other large lease owners in the vicinity of the well include W. H. Delaney with 880 acres, and four gas wells about a mile to the northwest; Choctaw Oil & Gas Co., with 960 acres, and a test drilling at 1,400 feet in the SW cor. NE SW Section 1-1-7; and Continental Oil Co. with 2,240 acres of leases in a

Wildcat Operations in Oklahoma

Northern Oklahoma

ALFALFA COUNTY

Company, farm and location— Remarks:
Acre et al's No. 1 Acre, C SW NE Sec. 14-24-11w..... O.W.D.D.; drlg. 5,595 ft.

BECKHAM COUNTY

Pattee Royalty Co.'s No. 1 Goose Tree, SW SE SW SE Sec. 33-10-23w ..... Drlg. 3,004 ft.

CADDO COUNTY

Denver P. & R. Co.'s No. 1 Noe, NW SW SW Sec. 34-10-10w ..... Drlg. 9,500 ft.

COAL COUNTY

Dodd & Burton's No. 1 Grigsby, NW SE NE Sec. 35-1-8.. Drlg. 1,878 ft.
Funk & Russell's No. 1 Miller, SE NE Sec. 10-2-3 ..... Fishing 2,750 ft.

GARFIELD COUNTY

J. H. Lewis' No. 1 Clark, C NW NW Sec. 34-21-4w ..... Rig.

HUGHES COUNTY

Dixie-Lee Oil Co.'s No. 1 Taylor, C NW Sec. 27-5-10.... Drlg. 350 ft.
Pioneer Pet. Co.'s No. 1 Brock, SE cor. Sec. 26-5-11 ..... Rig.
Redwine et al's No. 1 Badger, C N half SW SW Sec. 4-5-11 ..... Drlg. 330 ft.
Scruggs et al's No. 1 Black, NE Sec. 13-9-10 ..... Rig.

KAY COUNTY

Blauner et al's No. 1 Maple, NE NW SE Sec. 20-27-4.... Drlg. 1,330 ft.

KIOWA COUNTY

Christian's No. 1 Jones, NE NW Sec. 8-7-18w ..... Drlg. 1,900 ft.
King & Moore's No. 1 King, SE SW NW SW Sec. 27-7-20w ..... Drlg. 972-73 ft; est. 2,000,000 ft. of gas.
McWhirter et al's No. 1 Vanderneck, NE NW Sec. 3-7-19w (O.W.D.D.) ..... Drlg. 2,155 ft.

LINCOLN COUNTY

J. Garfield "Bull's No. 1 Smith, NW SE Sec. 26-16-6.... Rig.
Magnolia Pet. Co.'s No. 1 Wagoner, SW SE Sec. 2-14-3 .. Drlg. 4,928 ft.

LOGAN COUNTY

Gypsy Oil Co.'s No. 1 McConnell, C NE SE Sec. 28-17-4w. Wilcox 6,120-41 ft.; 4,700 bbls. in 20 hrs.
Shell Pet. Corp.'s No. 1 Faulkner, C SE NW Sec. 11-15-4w Drlg. 6,706 ft; show wtr.

MURRAY COUNTY

A. E. Harden's No. 1 Sadler, NE Sec. 19-1-3..... Rig.
T. E. Revells et al's No. 1 Wolfe, NE cor. Sec. 13-1-3... Rig.

MUSKOGEE COUNTY

J. S. Routt et al's No. 1 Escoe, CWL SE NE Sec. 17-13-17 Drlg. 905 ft.

NOBLE COUNTY

Sinclair Prairie's No. 1 Jerome, SW cor. Sec. 15-20-2w.. T.D. 5,337 ft; P.B. to 4,955-70 ft. to test.
Wentz & Feagen's No. 1 Eyler, C SE SW Sec. 10-21-2... Drlg. 2,190 ft.

OKLAHOMA COUNTY

Mid-Continental Oil Co.'s No. 1 Edwards, C SE SE Sec. 19-11-1 ..... Drlg. 1,965 ft.
H. E. Rapp's No. 1 Price, CEL NE SW Sec. 19-14-3w.... Drlg. 250 ft.
F. Russell's No. 1 Heapley, SW NW NE Sec. 22-12-3w.. Drlg. 4,060 ft.

PAYNE COUNTY

Kemp & Nunnelee's No. 1 Crane, SW SE SW Sec. 10-17-6 Drlg. 1,300 ft.
O. N. Maines et al's No. 1 Scheidberg, NW SW NW Sec. 27-22-6 ..... Wilcox sand 3,114-35 ft.; wtr.

PITTSBURG COUNTY

Moffett & Hall's No. 1 Jones, C NE NW Sec. 14-8-14 .. Drlg. 2,705 ft.

PONTOTOC COUNTY

Gilbert's No. 1 Starritt, NW SE Sec. 28-4-6..... Drlg. 1,313-20 ft; 5,000,000 ft. gas.
Choctaw O. & G. Co.'s No. 1 Thompson, SW NE SW Sec. 1-1-7 ..... Drlg. 1,300 ft.
W. E. McGraw's No. 1 Mayhue, NE Sec. 19-3-6..... Drlg. 1,180 ft.
McGee et al's No. 1 Newborn, SW NE Sec. 31-5-4..... Rig.
Williams' No. 1 Kroth, NE SE Sec. 33-3-4..... Drlg. 1,977 ft.
Wirrick's No. 1 Lee, SE SW Sec. 29-2-7 ..... Drlg. 2,641 ft; S.O.

POTTAWATOMIE COUNTY

Payne Drlg. Co.'s No. 1 Lovelace, NW SW NW Sec. 27-6-4 W.O.C.S. 3,623 ft.

SEMINOLE COUNTY

Carter Oil Co.'s No. 1 Bay, C W½ NE NE Sec. 23-11-6.. Spudding.
Sinclair Prairie's No. 1 Tierney, SE cor. Sec. 2-11-6.... Rig.
Sibbie & Freeman's No. 1 Gilbert, SW NW Sec. 25-8-7.... Machine.
Stewart & Egan's No. 1 Sanderson, NE SW Sec. 27-6-5.. Spudding.
Filmlee's No. 1 Bowlegs, SE NE SW Sec. 1-7-7 ..... Drlg. 800 ft.
Armstrong et al's No. 1 Diamond, NE SE SW Sec. 3-6-7.. Drlg. 4,030 ft.
Donnelly et al's No. 1 Shepard, SE NE Sec. 4-8-8..... Sand 1,395-1,405 ft; wtr.; fishing 1,440 ft.

WASHITA COUNTY

McWhirter & Bost's No. 1 Hall, SW SE SE Sec. 23-8-19w. Drlg. 180 ft.

Southern Oklahoma

ATOKA COUNTY

Blake's No. 1 Galbreath, SW NE SE Sec. 5-1-15 ..... Drlg. 248 ft.
Malernee et al's No. 1 Cole, NE NW Sec. 19-2s-14.... Drlg. 225 ft.
L. E. Stewart et al's No. 1 Stewart, SE SE Sec. 2-4s-10.. Drlg. 1,950 ft.
Wacker et al's No. 1 Baskett, SW NE NW Sec. 18-1-15.. Drlg. 325 ft.

JEFFERSON COUNTY

Wakefield's No. 1 Kelly, NW SE Sec. 1-5-8w..... Drlg. 550 ft.

STEPHENS COUNTY

Doyle Oil Co.'s No. 1 Cunningham, SE NE NW Sec. 4-1-4w ..... Drlg. 2,500 ft.
Sledge et al's No. 1 Worley, SW SE SW Sec. 32-2-7w.... Fishing 460 ft.

TILLMAN COUNTY

Emenheser et al's No. 1 Pace, C SW Sec. 3-4s-17w..... Drlg. 3,280 ft.
J. H. Everett's No. 1 Crane, SW cor. Sec. 15-2s-14w..... Rig.
Gypsy Oil Co.'s No. 1 Pitcher, NW Sec. 26-4s-15w..... Drlg. 2,764 ft.
Gypsy Oil Co.'s No. 1 Co. Do. Pony, NW cor. Sec. 27-4s-15w ..... Abd. 3,160 ft.

block about 2 miles southeast of the Moore well.

West Holdenville Operations

Increased activity is reported from the West Holdenville area in Hughes County, with the announcement that a location was made to drill a test that will extend development work in the field a mile. E. F. O'Farrell and others' No. 1 Classen, C NW Section 12-7-8, is to be a Wilcox sand test and drilling is expected to start by August 1.

The announcement of this test follows closely the renewal of operations in the West Holdenville Field where several other tests will be drilled and others are nearing the pay horizon.

J. C. Jackson and others' No. 1, NW NE NE Section 22-7-8, is a new location in the western part of the West Holdenville Field. Rotary tools will be used, and it is said this will be the first well in the field to use rotary tools in drilling for the shallow Calvin sand. It is estimated by the owners that a well can be drilled in about three days with rotary tools, while it requires about 21 days to drill with cable tools.

The well will be a direct offset to the well of the Maimard Oil Co. and a diagonal offset to the Troupe and O'Conner well, both of which are producing around 100 bbls. a day.

A mile to the west, Baskin and Leeper's No. 1 Coppedge, SE cor. Section 15-7-8, was drilling at 700 feet. It offsets the Dundee Oil Co.'s No. 1 Pickens, which found the Gilcrease sand at 3,196 feet, where oil rose 1,700 feet in the hole.

In the St. Louis Field, Pottawatomie County, Hilton Phillips and others' No. 2 Cook, SE cor. SW SE Section 21-7-4, found the top of the Viola lime at 4,090 feet and was drilling at 4,125 feet.

Vaughn and others' No. 1 Lawther, NW cor. NE SW Section 33-7-4, found the top of the Hunton lime at 3,891 feet and was drilling at 3,995 feet.

In the West Seminole Field, Phillips Petroleum Co.'s No. 6 Fixico, a twin to No. 3, SW cor. NW Section 20-9-6, Seminole County, is a new location. It will be a Calvin sand well.

Wentz Pool Open to Production

In the Lucien or Wentz Pool, in Noble County, activity is being resumed and the wells were opened during the week to regular production. Recently the Oklahoma Corporation Commission granted this pool an allowable of 8,000 bbls. a day, this nomination being made by the Shell Petroleum Corp., as it has recently completed an 8-inch pipe line into the area. The commission also ordered all wells to be tubed.

During the week the Lucien Consolidated Community's No. 1 Wolf, in Section 17-20-2w; No. 1 E. Farr, in Section 19-20-2w; No. 1 Jerome, in Section 8-20-2w, were opened to production and averaged around 4,000 bbls. daily. The largest well in the field, the No. 1 Whitten, in Section 7-20-2w, is being tubed prior to being put on regular production.

On account of the fact that these wells are being put on regular production a number of new locations were announced.

Buys Deep Sand Rights

Phillips Petroleum Co. has entered the Sayre gas field of Oklahoma through a purchase from the Ramsey Petroleum Corp. of deep sand oil and gas rights on more than 4,000 acres of leases on the Sayre structure.

Ramsey Petroleum Corp. retains all of its producing oil and gas wells, pipe lines and oil and gas rights in all of the leases down to 3,000 feet and it also retains its royalty and fee interests. The consideration in the transaction was not announced by W. R. Ramsey, president of the company.

The Phillips Petroleum Co. has staked a location on this acreage and is expected to start operations within a short time at No. 1 Martin, C NE NW, Section 27-9-23w, for a 6,500-foot test. It will be the deepest well drilled in Beckham County. Unless the Wilcox sand is found at this depth the test will be drilled deeper.

This transaction follows a lease play that has swept all of Beckham County, following geological and geophysical surveys of the last two years. A number of other lease blocks have been assembled by several major oil companies in the district, and it is expected that some will be drilled during this year, either by major oil companies or independents.

On the Sayre structure there has been developed about 30 gas wells which found gas at approximately 2,700 feet in the upper part of the Pennsylvania formation. These wells have produced and marketed what is estimated to have been over 18,000,000,000 feet of gas in the last 10 years. These wells are now yielding in excess of 5,000,000,000 feet of gas annually, supplying western and northern Oklahoma areas. There also has been seven oil wells completed in the field, their combined recovery being in excess of 350,000 bbls.

The Sayre gas field was discovered in July, 1922, by a well drilled by the Twin Hills Oil Co. in Section 15-9-23w, which had as initial production of 50,000,000 feet of gas a day at a total depth of 2,755 feet. Several years later, when most of gas had been removed this well produced some oil. In April, 1923, Martin and others completed a 200-bbl. oil well in Section 31-9-23w, at a total depth of 2,995 feet and this well produced until 1931 when it was abandoned as exhausted.

The Sayre structure has what is termed a 200-foot closure on definite subsurface markers and extends in an east and west direction for 6 miles and about 2 miles across. This area has been proved by drilling to shallow and deep sands.

Interest in the Sayre area is being revived and the following operations are under way: Ramsey Petroleum Corp.'s No. 1 Poarch, SE cor. NE NW, Section 24-9-23w, drilling around 1,200 feet to test the Sayre gas sand which is found around 2,750 feet; Fred Coogan and others' No. 1 Beagle, C NE NW, Section 28-9-23w, rig complete; Pattee Royalty Co. and others' No. 1 Goosetree, SE cor. SW SE, Section 32-10-23w, having trouble with casing at 3,040 feet.

In Greer County, which adjoins Beckham County on the south, B. Barker and others have taken over the old Dobell & Good's No. 1 Uffel, NW cor., Section 1-7-22w, which has been shut down for more than a year at 1,710 feet. It found a showing of gas at 1,465 feet. The block of leases on which the test is located has been revived again and the new owners have refinanced. No fixed depth has been agreed upon, but it is believed that the well will be drilled to 3,000 feet.

Northern Leasing Activities

Along with the recent advance in crude oil prices lease blocks are sought in western and northern Oklahoma.

Southeast of the townsite of Renfrow in Grant County, and extending north to the Kansas State line the Amerada Petroleum Corp. and L. H. Wentz interests have been blocking acreage in what is believed to be a trend toward the state line pool, a Wilcox sand pool. Tracts that have recently been taken include Sections 15, 16, 21, 22, 27 and 28, in Township 28-4w. Other companies owning acreage in the vicinity of this play include, Sinclair Prairie Oil Co., Texas Co., Gypsy Oil Co., Margay Oil Co. and Tide Water Oil Co.

A block of acreage is being assembled in Townships 20-10w and 20-11w, south of Isabella in Major County.

There has been considerable leasing north of Bridgeport, in Townships 12-11w and 13-12w. This was considered to be favorable territory a number of years ago when a deep wildcat test was drilled south of Bridgeport.

A new play is under way in the Greater Seminole district. A block of acreage is being assembled in and around Section 24-10-6, along the Seminole County line. This play is west of the new Keokuk Falls Pool, which was recently opened up by the drilling of a wildcat well.

Beckham County

Phillips Petroleum Co.'s No. 1 Martin, C NW NE Section 27-9-23w, is a location.

Carter County

Skelly Oil Co.'s No. 1 Westheimer, SE cor. NE SW Section 8-2-2w, is a rig.

Earl and Hammer's No. 1 School Land, NW cor. NE NW Section 3-1s-3w, is a location. Carter Oil Co.'s No. 1 Perkins, C SW NW SW Section 3-1s-3w, is a rig. W. Neustadt's No. 1 fee, NE cor. SW SW Section 3-1s-3w, is a location. Lloyd Oil Co.'s No. 3 Majors, C NE SW SE Section 25-1s-3w, made 618 bbls. from 2,661-2,700 feet.

Hughes County

Mid-Continent Petroleum Corp.'s No. 4 Factor, NW cor. NE SE Section 15-7-8, is a location. Same company's No. 3 Factor, SE cor. NW SE Section 15-7-8, made 71 bbls. in sand at 1,186-1,203 feet.

Jefferson County

Bridwell Oil Co.'s No. 1 Seay, SW cor. SE NW Section 4-7-5w, is a rig.

Lincoln County

Kemp-Nunnally's No. 1 Longren, NW cor. SW Section 25-17-6, is a rig.

Logan County

Sinclair Prairie Oil Co.'s No. 1 Short, SW cor. NE Section 27-17-4w, is a location. Same company's No. 1 Phillips, NE cor. NW Section 28-17-4w, is a location. Same company's No. 1 Shaffer, NE cor. NW Section 28-17-4w, is a location.

Noble County

Lucien Consolidated Community's No. 1 Magney, C SW SW Section 17-20-2w, is a rig. Same company's No. 1 Bolay, C NE NE Section 18-20-2w, is a location. Same company's No. 1 O'Hern, C SE SE Section 18-20-2w, is a location.

Oklahoma County

B. Rucker's No. 1 Everest, SW cor. NW SE Section 15-11-3w, is a location. Wofford Drilling Co.'s No. 1 Thomas, SW cor. SE Section 22-11-3w, is a location. Phillips Petroleum Co.'s No. 1 Hardcastle, NE cor. SE SW Section 22-11-3w, made 1,730 bbls. from 6,503-80 feet in four hours. Same company's No. 4 Berg, NW cor. SW Section 26-11-3w, flowed 1,098 bbls. in four hours from 6,564-6,635 feet. Cimarron-Canadian River Oil & Gas Co.'s No. 1 Little, NE cor. Section 27-11-3w, made 1,658 bbls. in four hours from 6,463-6,596 feet.

Pottawatomie County

Mid-Continent Petroleum Corp.'s No. 2 Schrader, NW cor. NE Section 6-6-5, made 560 bbls. from 4,035-73 feet. Amerada Petroleum Corp.'s No. 1 Rice, SE cor. NE Section 32-7-4, made 887 bbls. from 4,185-4,223 feet.

Pontotoc County

E. H. Moore's No. 1 Gray, SE cor. NE Section 25-5-4, made 140 bbls. from 2,450-2,515 feet.

Seminole County

Phillips Petroleum Co.'s No. 6 Fixico, SW cor. NW Section 20-9-6, is a location.

Stephens County

George Pace's No. 4 Gilworth, SE cor. NW NW Section 2-2-8w, was drilling at 200 feet. Braden and others' No. 15 Green, SW cor. NW SE SE Section 27-1-5w, made 5 bbls. from 737-40 feet.

Tillman County

Gypsy Oil Co.'s No. 1 Co-Do-Pony, NW cor. Section 27-4-15w, was abandoned at 3,160 feet.

IMPORTANT BOOKS
for the Oil Man's Library

"MERCHANDISING OF PETROLEUM PRODUCTS"

After 12 years of unusually successful actual field work in one of the largest oil marketing companies, R. H. Thomas undertook to place a simplified resume of sales problems and their solution in book form at the suggestion of men in that business.

In this book, "Merchandising of Petroleum Products," he tells the bulk station agent how to survey and keep records on potential customers in his territory; how to make farmer solicitations; how to extend credit, make collections, and then, through a combination of thoughtful work and good business judgment, come out on the black side of the ledger at the close of each month. He permits enough detail in the book to show how the products received into the plant may be properly accounted for as to quality and cost, and also suggests a method of inventory.

In addition to the discussion of the executive and purely sales duties, he offers a wealth of hints on the choice and care of plant equipment. The chapter on "Safety" clearly shows that the author is intimately familiar with the actual operating problems in the plant.

Then in a fine choice of words the author explains what the agent and station salesman should know about the products he sells and the characteristics of the modern motor to permit him to take advantage of the expanding and more specialized market for oil products.

Such modern problems as "Ruinous Price Cutting" are given full consideration in the book. To combat this evil the "Station Salesman" is developed to take the place of the "Station Attendant."

The book concludes with a liberal supply of questions and answers pertaining to the work of the bulk plant operator and the station operator that will be of inestimable value to anyone interested in oil marketing.

This reviewer knows of no other book on the important subject of merchandising petroleum products. If other books of such character were available, the Thomas volume would still rank high. Standing alone as the only compilation on this subject, and in consideration of its notable value, this text is doubly worth reading by those who need guidance on the difficult problems incident to petroleum-products merchandising.

"Merchandising of Petroleum Products" may be purchased through the Book Department of The Oil and Gas Journal at the regular postpaid price of $2.50, payable by check or money order before book is forwarded.

SUE ON GASOLINE CONTRACT

NEW YORK, July 31.—Nathan I. Lipson, operating a gasoline service station at Boston, has filed suit in the U. S. District Court there against the Standard Oil Co. of New York, Inc., and the Socony-Vacuum Corp., claiming $100,000 damages as a result of alleged price discrimination against his business.

The complaint states that while gasoline sales are made to some retailers at tank car prices, the plaintiff was refused such terms unless he would enter into an agreement not to handle the products of competing refiners. Tank wagon prices were available to the plaintiff, it was stated.

Rice, Reno, McPherson and Harvey Counties Are Receiving Most Attention in Kansas

By W. A. SPINNEY
Staff Correspondent, Kansas Fields

A decline of over 5,000 bbls. per day in the production of the Hollow Pool in northern Harvey County caused a drop in the total production of Kansas in the week ending July 29, the net falling off having been 3,085 bbls. per day.

The improvement in the crude oil marketing situation has created a renewed interest in prospective producing areas in the State, and leasing and wildcatting are on the increase, the central and western counties being the favored spots. Kansas at this time is producing more oil than it has during most of its life as an oil state, and it is capable of producing more oil than it has sent to market. It holds out much promise of continuing as, at least, the fourth producing state in the union for a long time, and oil men have confidence that many pools will be opened in the western half of the big State.

Production of Fields

Last week's average daily production in the most important fields, and the production of the previous week in the same areas are given below:

Field or pool—	July 29	July 22
Hollow	10,995	15,470
Ritz-Canton	24,180	23,445
Voshell	7,170	7,310
Sedgwick County	19,165	9,780
Mabee (Nikkel)	9,305	8,845
Ellsworth County	2,507	2,411
Barton County	273	375
Rice County	5,829	5,816
Reno County	2,200	2,182
Greenwood County	11,150	11,189
Butler County	16,545	16,567
Other pools	25,156	25,170
Total Kansas	125,475	128,560

In the Welch Pool, Rice County, C. D. Carpenter and Hipple and others' No. 4 Rainey, SE cor. NW SE, Section 3-21-3w, in the southeastern part of the county, was flowing 50 bbls. of oil an hour and was estimated at 1,200 bbls. a day from the chat. It soon filled all the available storage and was then shut in. The well indicates that the production in the field is extending to the south and southeast and its completion is expected to result in additional locations.

Other tests drilling in the vicinity include the Phillips Petroleum Co.'s No. 3 Miller, SW cor. SE NE, Section 3-21-3w, located northeast of the Rainey well, and was drilling at 1,000 feet.

Another wildcat test was announced in the wildcat territory in eastern McPherson County. The test is Regina Oil & Gas Co.'s No. 1 Vogts, C SE SE, Section 8-20-1w. It is located about 4 miles south and about 1½ miles east of the townsite of Canton. It is being drilled on a core drilled structure and cable tools will be used at the location.

The wildcat test of Clum and Washoma Petroleum Corp., No. 1 Nelson, NW cor. SE NW, Section 12-18-4w, is underreaming the 6-inch casing after finding water in the Viola lime from 3,429-3,540 feet. As soon as the casing is landed the drilling will be resumed to the Wilcox sand.

Another Reno Test

Another wildcat test was announced for Reno County during the week by L. A. Mylius and the Rose Spring Oil Co. The location for the test is 4 miles southeast from Hutchinson at No. 1 Patton, SE cor. NE, Section 35-23-5w. It is located two locations north and three west of W. C. McBride, Inc. and others' No. 1 Bacon, which had several showings of oil and gas. The No. 1 Bacon found a showing of oil in the Kansas City lime and was estimated at 65 bbls. a day from the chat. A showing of oil was also found in the Hunton lime. The showing in the Viola lime was estimated at 40 bbls. a day. The Wilcox sand and the Siliceous lime produced only water. The hole was drilled to a total depth of 3,934 feet and abandoned. Rotary tools will be used at No. 1 Patton and the cellar and slush pits are now being dug. W. C. McBride, Inc. is the largest holder of leases in the vicinity of the test.

New locations were announced during the week in the Nikkel and Ritz-Canton Pools in McPherson County. J. H. Mabee and Shell Petroleum Corp.'s No. 3 Nikkel, SW cor. NW SE, Section 33-21-3w, is in the south part of the pool. Rotary tools will be used and steel derrick is being erected and materials moved in. In the Ritz-Canton Pool, Phillips Petroleum Co. and Shell Petroleum Corp.'s No. 3 Grattan, SW cor. SE SE, Section 19-19-1w, is in the north central part of the field.

In the northern part of the Hollow Field in Harvey County, three locations were announced. Skelly Oil Co.'s No. 4 Schmidt, NW cor. SW NW, Section 17-22-3w, will be a north offset to the same company's No. 1 Schmidt, a Hunton lime producer. Two tests have been staked by the Sinclair Prairie Oil Co., No. 4 Neufeldt, NE cor. SE NE, Section 18-22-3w, west offset to Skelly Oil Co.'s new location, and on the west side of the pool No. 4 Ediger, SE cor. SW, Section 19-22-3w, which will require three other offsets. Rotary tools will be used at these locations.

Much Interest in Rice County

Interest continues in the Chase townsite area of Rice County. E. F. Jones' No. 1 Rose is the largest Siliceous lime well yet completed in the Chase townsite pool. It has pumped approximately 30,000 bbls. of oil since it was first put on production. It is located just south of the townsite on a 9-acre tract. It has been producing at the rate of 100 bbls. an hour from a total depth of 3,224 feet.

Belief that the large production lies south of the town is evidenced by the fact that a number of new tests are getting started in that vicinity.

E. H. Langston and others' No. 1 Wells, NE cor. SE Section 4-20-9w, about 2 miles southeast of the Chase townsite area, was drilling deeper. The owners plan to drill the well to greater depths in an effort to find more production.

R. Ramsey and others' No. 1, in the city park in the Chase townsite, was drilling deeper at 1,700 feet.

Vickers Petroleum Co. and others' No. 1 Specht, SE cor. NE Section 20-20-10w, extended the production in the Schurr Pool, near Raymond, in Rice County a quarter of a mile to the west. The well's potential is 1,023 bbls. per day from the Siliceous lime at 3,335-54 feet, after treating with acid. Before using acid it made 50 bbls. of oil daily. This well has revived the activity in the area. Three locations have been announced offsetting the well. They are Slick, Pryor & Lockhart's No. 4 Schurr, NW cor. SW Section 21-20-10w; Texas Co.'s No. 2 West, SW cor. NW Section 21-20-10; and Sinclair Prairie Oil Co.'s No. 1 Specht, NE cor. SE Section 20-20-10w.

Miscellaneous Tests

Atlantic Oil Producing Co.'s No. 1 Gates, in Section 27-21-13w, Kingman County wildcat, was drilled deeper. The well was making around 170 bbls. of oil per day from a total depth of 3,704 feet before it was deepened, and after it was drilled to 3,714 feet it swabbed 136 bbls. of oil in 12 hours and started making water. The company is now plugging back to 3,704 feet. The top of the Siliceous lime was found at 3,694 feet.

In the Hollow Pool, in Harvey County, Frank Hollow and others' No. 2 Schmidt, in Section 17-22-3w, was making 28 bbls. of oil an hour from the Wilcox sand at 3,574-84 feet and after drilling deeper to 3,587 feet, water rose 1,000 feet in the hole. The well is being plugged back to shut off the water.

Slick, Pryor & Lockhart's No. 1, NE cor. SE Section 27-18-10w, Ellsworth County, made 740 bbls. of oil from the Siliceous lime at 3,248-58 feet.

Roth & Farout's No. 1, in Section 13-19-3w, a wildcat test east of production in the Johnson Pool, in McPherson County, was drilled deeper into the chat and increased the gas production. The old total depth of the hole was 2,959 feet and after drilling to 2,961 feet it increased from 10,000,000 feet of gas a day to 26,000,000 feet a day.

Survey for Gas Pipe Line

A survey is being made for a pipe line from the gas wells that have been shut in for several years in Rush County in the Otis Field to the Northern Natural Gas Co.'s main pipe line. The survey will be for about 14 miles of line straight east from the field to take the gas to the company's 26-inch main pipe line which runs from southwestern Kansas and the Texas Panhandle to the northern states. When this project is completed it is expected that drilling will be revived in the district.

In the Burrton area of Reno County the Olson Oil Co.'s No. 1 Querfield, C SW SE Section 27-23-4w, has landed curface casing and will resume drilling operations in a few days.

In the Hutchinson area of Reno County, Mylius and Rose-Spring Drilling Co.'s No. 1 Patton, SE cor. NE Section 35-23-5w, are starting a new test. Some material for the rig and equipment is being trucked from Oklahoma and it is expected to arrive in a few days.

Joint Test in Finney County

The stake has been driven for another oil test in Finney County. The location is about 30 miles northeast of Garden City. The test will be drilled by National Refining Co., which will operate with Atlantic Oil Producing Co. and Phillips Petroleum Co., each having a quarter interest, while the Continental Oil Co. will have a three-sixteenths interest, and Kuns Brothers, drilling contractors, a one-sixteenth interest. It will be No. 1 Smith, C SE SW Section 2-23-29w.

In the Scheufler area, Barton County, Stanolind Oil & Gas Co.'s No. 1 Gerloff, in Section 9-20-11w, found the Siliceous lime at 3,295-3,300 feet with a showing of oil. No estimate was announced of the showing. The hole will probably be drilled deeper before a test is made.

Production from the Goodrich area in Sedgwick County, which has been averaging around 500 bbls. daily for some time, has now increased to 1,000 bbls. daily, due to the use of acid treatment in a number of wells which are producing from the Kansas City lime.

Cowley County

M. B. Armer and others' No. 2 Fuller, SE cor. SW SW SE Section 22-32-4, old well drilled deeper, total depth 3,005 feet, cleaning out.

Greenwood County

El Bar Corp.'s No. 1 Frankhauser, NW cor. SW NE Section 21-22-12, is a machine. Derby Oil Co.'s No. 1 Young, NE cor. SE SE Section 22-22-13, was drilling 600 feet. Rix and others' No. 1 Huff, NW cor. SE Section 29-25-14, is a loca-

(Continued on Page 66)

Wildcat Operations in Kansas

(Descriptions are East unless marked otherwise)

BARTON COUNTY

Company, farm and location— Remarks:

Helmert & Payne's No. 1 Everhigh, C SW SE Sec. 12-18-12w ..... Rig.
Rankin et al's No. 1 Sooeg, C SW NE Sec. 34-18-12w ... Drlg. 3,531 ft.
Skelton et al's No. 1 Ott, C SE SE Sec. 16-19-14w ..... O.W.D.D.; T.D. 3,607 ft.; C.O.

BUTLER COUNTY

Hartman et al's No. 1 McCann, SE SW NW Sec. 7-25-3 .. Drlg. 1,357 ft.
Marylyn Oil Co.'s No. 1 Harsh, NE SW Sec. 33-23-5 .... Drlg. 1,600 ft.

COWLEY COUNTY

E. Yarnell's No. 1 Speer, SE NE NE Sec. 31-33-6 ..... Drlg. 1,400 ft.

ELLSWORTH COUNTY

Rex Etnyre's No. 1 Arnsman, C SW SW Sec. 10-15-7w .. Rig.

GEARY COUNTY

Ledauris' No. 1 Fechner, C SE NE Sec. 27-13-8 ..... Drlg. 950 ft.

GRAHAM COUNTY

Schleimeyer et al's No. 1 Smith, SE Sec. 24-8-25w ..... Fishing 4,180 ft.

KINGMAN COUNTY

Garden et al's No. 1 Unknown, Sec. 11-27-7w ..... Drlg. 3,080 ft.
D. R. Lauck et al's No. 1 Church, SE SW NE Sec. 10-28-6w ..... Drlg. 1,120 ft.

MARION COUNTY

Hutchinson Oil & Gas Co.'s No. 1 Miller, NW cor. Sec. 6-17-3 ..... Drlg. 2,015 ft.

McPHERSON COUNTY

Clum et al's No. 1 Nelson, C NE NW Sec. 12-18-4w ..... Drlg. 3,541 ft.
Sever and Hessman's No. 1 Scrag, 8½ SE Sec. 22-19-4w .. Rig on ground.
Gaume & Maxwell's No. 1 Goering, NE SE SW Sec. 24-22-2w ..... Rig.
Investors Mineral Dev. Co.'s No. 1 Kaufman, SE Sec. 25-21-2w ..... Rig.
Roth & Farout's No. 1 Swanson, NE SW NE Sec. 13-19-3w ..... Rig.

NORTON COUNTY

Moody Seagraves' No. 1, NW Sec. 24-3-22w ..... Drlg. 700 ft.

PRATT COUNTY

Ninnescah O. & G. Co.'s No. 1 Hardesty, SW SE SE Sec. 28-27-11w ..... Drlg. 4,427 ft.

RENO COUNTY

Mylius et al's No. 1 Patton, SE NE Sec. 35-23-5w ..... Rig.
Roth & Farout's No. 1 Yoder, C NW NW Sec. 15-24-5w .. C.O. 325 ft.

RICE COUNTY

Langston et al's No. 1 Wells, NE SE Sec. 4-20-9w ..... Drlg. 3,298 ft.

ROOKS COUNTY

Kruger's No. 1 Rathburn, SE NW SW Sec. 14-9-16w ..... Rig.

SUMNER COUNTY

Deal O. & G. Co.'s No. 1 Tompkins, SW cor. Sec. 26-33-1. Fishing 3,730 ft.

WOODSON COUNTY

F. Fiele's No. 1 Munson, SW NE SW Sec. 9-25-14 ..... Drlg. 500 ft.

Rains Cause Virtual Shutdown of Operations in North Louisiana and South Arkansas Fields

By D. H. BANCROFT
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., July 31.—Rains extending over three days without interruption brought about a practical shutdown of all operations in the oil fields of North Louisiana and South Arkansas. Main highways were flooded and field roads and trails leading to the scattered wildcats were so washed and miry that it was impossible to reach many rigs. Wells in the lowlands and gulleys of North Louisiana territory were under water and forced to shut down for a day or two after the storm had spent itself.

One of the "fatalities" was the deep test at Longstreet in DeSoto Parish. Oakes and others' No. 1 Bryant, in Section 30-13-15. The well has been under way for the last two years and when the storm weakened the foundations the derrick collapsed and scattered 4,600 feet of drill stem stacked in it all over the location. The well was due to drill plug from 6⅝-inch casing cemented at 4,454 feet and test this week. Because of its depth and the character of showings in the last four cores it had been holding a major position in the list of wells that are being watched, but it apparently is out of the picture for at least another week or so until a new derrick can be built and drill stem salvaged from the wreckage.

Meanwhile preparations appear to be under way for another deep test, 7,000 feet, in Webster Parish by one of the major companies owning a block of 12 or 15 sections centering about 6 miles northeast of Minden. The block is one of two, the other being in Bossier Parish northwest of Plain Dealing, that have been gone over with about every type of recognized geophysical machine there is and checked and rechecked. All that remains is authority from eastern headquarters to start the hole and completion of title work on every acre in the block. The same company is interested in a block of approximately 40,000 acres in Bienville Parish centering close to the town of Jamestown. The program was to drill four shallow wells, 3,000-3,500 feet, the first of which was abandoned this week after a salt water test at 3,503 feet, it being S. P. Borden and others' No. 1 Pardee, SW NW Section 35-16-8. Location for the next of the series has not been made nor has Dorcheat Syndicate announced location for its third well on a block centering around Section 35-22-10, Webster Parish. The first well on this block, 4 miles east of Cotton Valley, looked like a producer but salt water got it on test and the second 1,800 feet west also was lost for the same reason.

Nine Completions in Caddo Parish

Nine completions resulted in 40 bbls. new production in Caddo Parish, Louisiana, and Panola County, Texas, and 21,000,000 feet of gas in the Jackson Field of Hinds-Rankin Counties, Mississippi. Seven new locations were divided, two in Louisiana, one in Mississippi and four in East Texas, three of these four being in Panola County and one in Marion County.

The defining well to the northwest in Converse district of Sabine Parish, Louisiana, was completed as a 25-bbl. producer flowing by heads through 2½-inch drillstem with 100 bbls. of salt water from sandy lime at 3,061 feet. It is the much discussed Sabine Production Co.'s No. 1 Whiting Corp. in the SW SW Section 4-9-13, 1½ miles northwest of nearest production. The other producer was Mid-Continent Drilling Co.'s No. 1 Wooten in the P. Martin Survey of Panola County, 5 miles west of DeBerry. An old well begun by Carter & Skidmore a year ago, it was taken over and revamped by the present owners after a gas show at 2,072 feet and finished as a 15-bbl. pumper.

The Mississippi gas well was Meredith Trading Co.'s No. 1 Crane-Lawrence, NW SW Section 23-6-1e, Hinds County side of the Jackson gas field, which gauged 21,383,000 feet of gas from 2,477 feet. Other completions were: The Borden well referred to; Louana Oil & Gas Co.'s No. 2 Sharpe, NE NW Section 10-18-16, Blanchard gas district of Caddo Parish, dry at 2,771 feet; Rice Brothers' No. 1 Evans, SE NE Section 11-20-16, Oil City district of Caddo Parish proven territory, dry and abandoned after a show of oil at 1,575 feet; H. W. Snowden's No. 1 Meyers, NE NE Section 15-22-7, Morehouse Parish section of the Monroe gas field, abandoned after spudding to protect the lease last October; Magnolia State Oil & Gas Co.'s No. 1 Anderson, NE NW Section 14-3n-3e, Amite County, Mississippi, at 460 feet; F. X. Gowans and others' No. 1 Elfring, SE NE Section 13-1n-14, Clarke County, Mississippi, at 102 feet.

Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

North Louisiana

AVOYELLES PARISH

Company, well, farm name, section and block— Remarks:

Gary Prevenson's (was Bud Harrell et al) No. 1 Haas, 330 ft. N and W, SE cor. SW SW Sec. 9-1s-3e .....Derrick.

BOSSIER PARISH

J. A. King et al's (was A. W. Phillips, tr.'s) No. 1 Oden, 300 ft. W, 150 ft. N, SE cor. NW NW Sec. 4-18-13 .....S.D. 1,704 ft.

Dr. C. R. Reed, tr.'s No. 1 C.J.&B., Sec. 18-16-11 .....Rigging up.

B. A. Sherrell, tr.'s No. 1 fee, NE NW NW Sec. 18-19-11..S.D. 1,408 ft.

CADDO PARISH

J. B. Hutchinson, tr.'s No. 1 Story Phillips, 330 ft. N and E, SW cor. SW NE SE Sec. 28-16-13.....Began drlg. July 21; cmtd. 10-in. 92 ft.

J. T. Humphrey et al's No. 1 Powell, 330 ft. N and E, SW cor. NW SE Section 14-19-15 .....Derrick.

John F. Kerper's No. 1 Barron, 350 ft. N and W, SE cor. NE SE Sec. 27-16-14 .....S.D. account high wtr. 1,937 ft.

A. D. King, tr.'s No. 1 Roach, 641 ft. E, 375 ft. N, SW cor. SW SW Sec. 4-14-16 .....Derrick.

CATAHOULA PARISH

George Greer et al's No. 1-B La. Cen. Lbr. Co., Sec. 2-9-6, 2,045 ft. N, 1,930 ft. W, SE cor. .....Tested dry 3,016 ft; arranging retest.

CLAIBORNE PARISH

United Gas Public Service Co.'s No. 1 Meadows, approximately 100 ft. S, center E½ E½ Sec. 13-21-5...S.D. 6,691 ft.

DESOTO PARISH

Bailey Gants et al's No. 1 Jenkins, NW cor. SE SW Sec. 15-13-12 .....Tested S.W.; W.O. 3,069 ft.

J. H. McKenzie's (was P. B. Dyer's) No. 2 B. F. Jenkins, 330 ft. N and E, SW cor. NW SW Sec. 35-15-12..Rig up.

N. B. Porter's No. 1 J. W. Porter Est., 330 ft. N and E, SW cor. SE SE Sec. 23-12-13 .....S.D. account high wtr. 350 ft.

SABINE PARISH

A. F. Allen's No. 1 G. W. Belton, NE cor. NW NW Sec. 33-9-13 .....Began drlg. July 15; cmtd. 12½-in. 40 ft.

J. F. Morrissey's No. 1 Wyatt Lbr. Co., 150 ft. S and W, NE cor. NW NW Sec. 13-4-12 .....Began drlg. July 22; cmtd. 10-in. 40 ft.

CONVERSE DISTRICT

R. L. Gay's No. 1-B Bowman-Hicks, 330 ft. N and E, SW cor. SW NE Section 22-9-13 .....Coring 1,475 ft.

Lambert et al's No. 1 Edwards, 300 ft. S and E, NW cor. SW NW Sec. 29-9-13 .....D.S.test 3,045-3,328 ft; S.W. and muc; W.O.

Joe Modisette's No. 3 Frost Lbr. Industries, 330 ft. S and E, NW cor. NE SW Sec. 16-9-13 .....S.D.; W.O. 3,190 ft.

E. M. Self's No. 1 G. I. Paul, 330 ft. N and W, SE cor. NE SW Sec. 9-9-13 .....Began drlg. July 13; cmtd. 10-in. 60 ft.; S.D.

Homer Tyson's No. 1 G. W. Hough, 330 ft. S and E, NW cor. SW NW Sec. 31-9-12 .....Derrick.

Arkansas

COLUMBIA COUNTY

C. W. Alworth et al's No. 1 W. D. King, SW cor. SE SW Sec. 16-17-20 .....Drlg. hard shale 2,050 ft.

JEFFERSON COUNTY

J. E. Elliott's No. 1 B. V. Nevin, 440 ft. N and E, SW cor. SW NW Sec. 26-4-10 .....Derrick.

R. V. Harrell et al's No. 1 McGoughey, NW cor. Sec. 22-7-10 .....S.D. 1,550 ft.

HEMPSTEAD COUNTY

Kentucky O. & G. Co.'s No. 1 Leslie, NW cor. SW NW Sec. 21-9-26 .....Derrick.

LAFAYETTE COUNTY

Paul G. Benedum's No. 1 Hanson, 175 ft. S, 50 ft. W, C, NW Sec. 25-19-24 .....Rig up.

Geo. W. Harper's No. 1 Reed-Bodcaw, NW cor. Sec. 16-15-22 .....Coring 1,162 ft.

MILLER COUNTY

Duluth-Ark. Oil Co.'s No. 2 Beck, 330 ft. S and E, NW cor. SE SW Sec. 24-15-26 .....Derrick.

J. T. Humphrey's No. 1 Grace, C SW SW Sec. 9-15-27...Cmtd. 10-in. 206 ft.

Claude English et al's (was Tarkington et al's) No. 1 Gibson, 1,980 ft. N, 660 ft. E, SW cor. Sec. 30-18-27..Began drlg. July 15; cmtd. 12½-in. 40 ft.

UNION COUNTY

E. R. Henderson's No. 1 Snyder, 400 ft. N, 660 ft. E, SW cor. NE SE Sec. 2-19-15 .....Top Nacatoch 2,170 ft; W.O. 2,610 ft.

(Continued on Page 55)

New work scheduled is United Gas Public Service Co.'s No. 1 Ed Webb, an old well in Section 23-17-12, Sligo district of Bossier Parish, completed several years ago as a gas well in the shallow stuff, rigging up to go deeper; Canhi Development Co.'s No. 1 Hardman, a location in SW SW Section 8-14-14, DeSoto Parish; Atkins and Hightower's No. 1 Woodland Hills, NW NE Section 26-6-1e, Hinds County, Mississippi, 8-inch cemented at 770 feet and drilling at 2,150 feet; Terry and others' No. 1 E. B. Colgin, Martin Noll Survey of Marion County, Texas, derrick up.

The Panola County, Texas, locations are a direct result of the Mid-Continent Drilling Co.'s completion, the No. 1 Wooten, and are within a mile or so of it.

W. H. Nichols and others have derrick up for No. 1 S. W. Ray in the northeast corner of the William P. Culver survey, a southwest offset to the Mid-Continent. Carl Reamer and others have location for No. 1 H. B. Ivy in the northeast corner of the 80-acre tract in the P. Martin Survey, southeast of the producer; M. H. Robbins and others have derrick up for No. 1 Alzee Williams in the southwest corner of a 30-acre tract in the Winnie Mann Survey.

Pipe Line Runs

Daily average runs from the field were up 690 bbls. over the preceding week's figures, totaling 58,360 bbls. as against 57,670 bbls. Louisiana runs were 26,040 bbls. compared with 26,320 bbls. the week before, a decline of 280 bbls. Arkansas fields shipped 32,320 bbls. compared with 31,350 bbls., an increase of 970 bbls. The new Converse Pool in Sabine Parish showed a small increase, 60 bbls., due to Golden and others' No. 1 Cranford, Section 20-9-13, going on the beam after it had ceased to flow through tubing. Other runs from the field were:

NORTH LOUISIANA

	Bbls.
Caddo light	4,590
Caddo heavy	1,475
Converse	285
Cotton Valley	470
DeSoto-Red River	1,600
Elm Grove	325
Haynesville	3,700
Holly	195
Homer	2,690
Pleasant Hill	235
Sarepta-Carterville	799
Zwolle	7,185
Urania	2,500
Total	26,040
Last week	26,320
Decrease	280

ARKANSAS

Champagnolle	1,320
El Dorado	3,620
Lisbon	395
Miller County	100
Nevada County	520
Smackover light	2,550
Smackover heavy	22,000
Stephens	450
Urbana	1,375
Total	32,320
Last week	31,350
Increase	970
Both states	58,360
Last week	57,670
Increase	690

NORTH LOUISIANA

Following the disappointing test at 6,610 feet—salt water with gas—United Gas Public Service Co.'s No. 1 Meadows, Section 13-21-5, Claiborne Parish, is shut down at 6,691 feet on account of high water. Pyramid Oil & Gas Co.'s No. 1

(Continued on Page 59)

Dick Schwab's No. 2 Holmes-Davis Comes In Unexpectedly as Livingston Field's Best Well

By NEIL WILLIAMS
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., July 31.—The unexpected happened in the new Livingston Field when Dick Schwab's No. 2 Holmes-Davis, located southwest of the discovery wet gasser, came in as the best oil producer completed to date. The performance of the well, which surprised even the operator and drillers who expected another gas well at best, throws a little more favorable light on the field where interest has been on the wane because of the questionable importance of the size of the producing area. The new well flowed 75 bbls., 15 per cent mud and wash water, in the first hour through a five-eighths inch choke with 900 pounds pressure on tubing and casing; 46 bbls., 1½ per cent mud and wash water, second hour, through a three-eighths inch choke with 1,050 pounds pressure on tubing and casing; and 39 bbls. of pipe line oil in the third hour through a nine-sixteenths inch choke with 1,100 pounds on tubing and 1,200 pounds on casing. Since then production has increased substantially, but at present is shut in for outlet facilities. It will require two offsets by Shell Petroleum Corp.

Completion of the well marks an unusually successful plug-back job. The hole, topping sand showing oil and gas at 4,320 feet, originally was drilled to a total depth of 4,394 feet, where a drill stem test indicated a gas pressure of 650 pounds but showed considerable salt water. The bottom then was plugged to 4,346 feet, where 152 feet of 5-inch screen was set, taking in some of the gas section above the oil pay as it was figured about the best that could be expected would be a wet gasser similar to the discovery well, especially in view of the unsuccessful efforts of Shell Petroleum Corp. to shut off water and make a well in its No. 1 Holmes-Davis, which was drilled late last year on a location just west of the present Schwab well.

Northwest of Three Producers

These wells are approximately three-quarters of a mile northwest of the spot where three producers, until now the only oil production of the field, have been completed, these being Shell's No. 2 Davis-Holmes, Shell's No. 1 Munson, a west offset, and Dick Schwab's No. 1 Allen & Hilbarger (Craig), a north offset to the former.

Polk County Oil Corp., recently organized by Mr. Schwab and the Josey interests to operate the Schwab holdings at Livingston, has taken over the operations and is starting No. 2 Allen & Hilbarger, a north offset to Shell's Munson well and 660 feet west of No. 1 Allen & Hilbarger. The latter, which has been flowing steadily better than 700 bbls. daily pinched in, dropped off sharply the last week to around 250 bbls. on open flow. Operators believe it has sanded and now are rigging up to work over.

The coming week is expected to witness important developments in the Tomball district, where additional wells now on the pay horizon will determine to a large extent the limits of the producing area. Humble Oil & Refining Co.'s No. 1 Herbert Reid, a key test east of the discovery well, late in the week was drilling in hard shale and sand at 5,520 feet and should pick up the pay shortly. This well recently created a sensation and was the incentive for an increased buying spree and play to the southeast when it was reported to have topped the Hockleyensis at minus 4,147 feet subsea. This was materially higher than in any other well so far drilled. Corrections in the marker depths have been made, however, which place the top of the Hockley in that well at minus 4,257 feet. While this still is a little higher than in the discovery well it does not throw the highest part of the structure in that direction, and, as a result interest has cooled off some and deals pending at high figures have been called off. There is still some buying going on but at prices substantially under those which have been paid.

Plugging Back Magnolia's Well

Magnolia Petroleum Co.'s No. 1 Rudel, 2½ miles northeast of the discovery well, and according to information so far revealed, located on the apex of the structure, and recently completed at 5,528 feet as a dry gasser in a sand designated in the Conroe Field as the Upper Cockfield, has been deepened to 5,610 feet, where it found water in the lower Cockfield horizon. It now is plugging back.

Of particular interest, however, will be the test to be drilled by Humble Oil & Refining Co. on the Gebhart tract in the C. W. Hahl Survey, approximately 6,500 feet southeast of the discovery well and about 5,600 feet southeast of the Reid test. General assumption has been that the field is in that direction and the test will prove or disprove the theory. Humble also has made location for another test, No. 1 Bloecher, J. N. Hooper Survey (Abst. 375), located northeast of the discovery well and southeast of Magnolia's Rudel gasser.

Humble Oil & Refining Co.'s No. 1 Amiel Doege, C. Goodrich Survey, a northwest trend key test, also is holding the spotlight. Late in the week it was coring sand showing gas below 5,520 feet. Two other tests are drilling in the immediate vicinity, these being Humble's No. 1 Emil Schults, which at latest report was in shale at 4,215 feet, and Continental Oil Co.'s No. 1 Petrich, east offset to Magnolia's Rudel well, which is in shale at 4,850 feet.

Tomball Subject of Speculation

Although the importance of Tomball cannot be estimated at this time, information revealed in wells so far drilled indicates that the field will fall short of expectations. A large structure is present, but the absence of large sand bodies and the comparatively small interval between the gas-oil contact and the water level make the production possibilities still open to speculation. The three completed wells, not including Magnolia's Rudel gasser, show signs of being edge wells. Magnolia's Kobs discovery well and its offset, Humble's No. 1 Fritz Kobs, and Humble's No. 1 Martens, a wet gasser located a mile west, are all making small percentages of water although pinched in. The Kobs wells are believed to be on the extreme south. The north also has been defined by Magnolia's No. 1 Martens, a salt water well a mile and a half north of the company's Rudel gasser.

Plymouth Oil Co.'s No. 1 Ream, completed recently as the discovery oil producer of the Garwood district in southern Colorado County in a sand at a total depth of 6,203 feet and later going to water, has been abandoned after deepening to 6,241 feet and again testing salt water. The rig is being moved to No. 1 Broussard, located farther west. Humble Oil & Refining Co.'s No. 1-B O. M. Powell, diagonal northwest offset to the Ream well, is drilling below 4,460 feet.

Production on the extreme northwest edge of the Thompson Field received another extension in the completion of Powers Production Co.'s No. 1 Fred Weisse, which came in flowing 55 bbls. an hour through a three-eighths inch choke from sand at 5,380 feet. Wes-Len Oil Co. (Cullen & West) has derrick up for No. 1 Mays, 450 feet southeast of this new producer. Three other producers were completed in the main part of the field.

Gulf Coast Fields and Wildcats

Week Ending July 29

DAMON MOUND—BRAZORIA COUNTY

Company farm and location—	Remarks
Intercoastal Oil Co.'s No. 11 Wisdom, 350 ft. E of No. 6, Blk. 51, Lot D, A. Darst Sur.	No report.
Sinclair Prairie Oil Co.'s No. 31-A Bryan, 155 ft. N, 45 deg. E of SW cor. of Blk. 28, Masterson Subd., and 140 ft. S, 45 deg. E, A. Darst Sur.	T.D. 7,586 ft; standing.

MANVEL—BRAZORIA COUNTY

Texas Co.'s No. 6 Belcher, H. N. Little Sur., South 42° W 2,400 ft. and S 45° E 400 ft. from N cor. lease	Rig.
The Texas Co.'s No. 2 Davis, 300 ft. out of S cor. Lot 42, H. N. Little Sur.	Drlg. shale 5,482 ft.

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Prod. Co.'s No. 1-C Barber, Henry Griffith League, 100 ft. E, 30 ft. N of SW cor. of tract	Drlg. salt 1,536 ft; top of salt 1,375 ft.
Mills Bennett Prod. Co.'s No. 4 Kirby (W.O.), Henry Griffith League	Cored sand showing oil 5,021-44 ft.
Mills Bennett Prod. Co.'s No. 5-A Wilburn (W.O.), Henry Griffith League	Sand showing oil 5,127-70 ft; set screen.
Sinclair-Prairie Oil Co.'s No. 14 Wilbur (W.O.), Henry Griffith League	Drlg. sandy shale 3,359 ft.
Sun Oil Co.'s No. 11 J. Wilburn (W.O.), Wm. Hodges Sur.	Pulling screen to deepen 2,610 ft.
Sun Oil Co.'s No. 12 Wilburn (W.O.), Wm. Hodges Sur.	Set 72 ft. of 4-in. screen 5,127 ft; washing.
Sun Oil Co.'s No. 17 Wilburn, Henry Griffith League, 150 ft. W of No. 6 and 50 ft. S of N line	Derrick.
The Texas Co.'s No. 8 Wilburn (W.O.), Henry Griffith League	Drlg. shale 5,180 ft.
Texas Gulf Prod. Co.'s No. 11-B Kirby, Henry Griffith League, 411 ft. from S line, 473 ft. from W line of tract	Drlg. salt 1,956 ft.
Texas Gulf Prod. Co.'s No. 3-C Kirby (W.O.), Henry Griffith League	T.D. 5,224 ft; milled out 4,836 ft. and sidetracked to sand 4,965-85 ft.; set 7-in. screen.
Yount Lee Oil Co.'s No. 20 Chambers County, Wm. Bloodgood Sur., 350 ft. from NW line and 50 ft. from SW line of lease	T.D. 4,808 ft; cmtd. 7⅝-in. csg. 4,672 ft.
Yount Lee Oil Co.'s No. 21 Chambers County (W.O.), Wm. Bloodgood Sur.	T.D. 2,133 ft.; plugged to 1,962 ft.; waiting cmt. to set.
Yount Lee Oil Co.'s No. 22 Chambers County, Wm. Bloodgood Sur., 200 ft. from W line, 2612½ ft. from N line of lease	Drlg. salt 2,751 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 18 Mayes, E. H. R. Wallis Sur., 205 ft. N and 425 ft. W of No. 1 Lost River	Drlg. sticky shale and lime 2,436 ft.

RABBS RIDGE—FORT BEND COUNTY

Gulf Prod. Co.'s No. 4-A Gubbels, Samuel Kennedy Sur.	T.D. 5,380 ft; cmtd. csg.
Humble O. & R. Co. and Gulf Prod. Co.'s No. 9 T. R. Booth, J. Rabb Sur.	Comp. 55 bbls. per hour; ⅝-in. choke, 5,300 ft.
Humble O. & R. Co. and Gulf Prod. Co.'s No. 7-A Geo. J. Rabb Sur., 1,744 ft. from W line, 454 ft. from S line	Comp. 26 bbls. per hour; ⅝-in. choke, 5,239 ft.
Humble O. & R. Co. and Gulf Prod. Co.'s No. 15 H. P. Lockwood, J. Rabb Sur., 2,095 ft. from W line, 311 ft. from N line	Drlg. sand 4,120 ft.
Humble O. & R. Co. and Gulf Prod. Co.'s No. 20-A Lockwood & Sharp, 1,867 ft. from W line, 349 ft. from S line of lease	Drlg. shale 4,282 ft.
Humble O. & R. Co. and Gulf Prod. Co.'s No. 15-B Lockwood & Sharp, J. Rabb Sur.	Comp. 52 bbls. per hour; ⅝-in. choke, 5,395 ft.
Humble O. & R. Co. and Gulf Prod. Co.'s No. 9 Meyers, J. Rabb Sur., 1,028 ft. E of No. 8	T.D. 5,349 ft; cmtd. csg.
Powers Prod. Co.'s No. 1 Fred Weisse, Samuel Kennedy Sur., 300 ft. N of S line in center E and W of 10-ac. tract	Comp. 55 bbls. per hour; ⅝-in. choke, 5,380 ft.
Wes-Len Oil Co.'s No. 1 Mays, Samuel Kennedy Sur., 228 ft. from E line, 360 ft. from S line of 14-ac. tract	Rig.

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PIPE LINE SCOUTS ORGANIZE

Pipe line scouts working for leading pipe line companies and crude purchasing companies in the East Texas Field have formed the East Texas Pipe Line Scouts Association. Meetings will be held in Tyler and Longview twice a week. Paul Schuls, Empire Pipe Line Co., was elected president; D. Bruce Beaton, Stanolind Crude Oil Purchasing Co., vice president; Walter Proctor, Gulf Pipe Line Corp., treasurer.

ROCKEFELLER NEPHEW HAS JOB

HOUSTON, Tex., July 31.—Winthrop Rockefeller, 21 years old, 6-foot nephew of John D. Rockefeller, arrived here by plane to spend part of his colleague vacation working for the Humble Oil & Refining Co. He found the trip from Fort Worth aboard an American Airways plane "interesting" owing to stormy weather conditions. The young man said he expected to spend about a month in the personnel department of the company to study industrial relations. He came here from New York.

Walton's No. 1 M. Hoffman Offers Best Chance Balcones Fault Has for Edwards Lime Well

By B. D. STEVENSON
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., July 31.—W. J. Walton's No. 1 M. Hoffman in Guadalupe County, in the Georgetown at 2,671 feet at the close of the week, is the best chance the Balcones Fault zone has at this time for an Edwards lime well, though it is conceded that from the showings and the action of the test thus far nobody can tell much about it. At last reports it was trying to core deeper and with a rubber packer lost off the testing tool in the bottom of the hole was making little progress but finally got through it.

The well is several miles southwest of the Darst Creek Field and much of the acreage in the block was obtained from Sinclair Prairie Oil Co. It lies in the trend or on a general line southwest of the general direction of the Darst Creek Field. It topped the chalk at 2,370 feet, Buda at 2,575 feet and the Del Rio was faulted away. Georgetown probably was topped at about 2,636 feet and total depth Friday last when drill stem test was made was 2,671 feet. The well had a showing of oil at 2,380-88 feet and some of the showing of oil that it made on drill stem test might have been oil from that showing in the chalk.

There was a cavity in the Georgetown where the well lost returns and these things complicate the showing and probability as to what the test will do when it reaches the Edwards. With the wall packer set at 2,370 feet it filled 712 feet with fluid in two and three-quarter minutes and when the drill stem was run out with the tester tool the bottom joints showed oil and gas.

It was anyone's guess late in the week what the test would do, but it has the attention of operators for the time being. The intention was to core through the Georgetown into the Edwards. The well was showing no sulphur water and the fluid that rose in the hole was mainly drilling fluid.

Starr County

Aside from the Walton test in Guadalupe County one of the most interesting spots is the northwestern Starr County new Sun Pool. Three wildcat tests around the Sun block are to be drilled, starting within 30 days, and Sun has killed its gas well and is to deepen it. The field to date consists of the discovery well, the No. 1-A Guerra, estimated at 17,000,000 feet of gas daily and gauging 15 bbls. of oil hourly in sand at 2,208-32 feet; the No. 1-B Guerra, a half mile north, which missed that pay and is drilling below 2,800 feet, and the No. 1-C Guerra, a half mile south of the discovery well, which came in for 40,000,000 feet of dry gas in sand at 2,141-49 feet and has since been killed and will be deepened.

McGinley Corp. and M. Stein are to drill on the northeast end of Porcion 110 in Starr County, east of the old inland town of San Roman and 2 or 3 miles east of the Sun tests. Rosenberg of Laredo is to drill on the A. C. Salinas tract southwest of the Sun tests and Coffey & Lanning are to drill on a block in southern Jim Hogg County north of the Sun block.

Starr County has been given a fresh start with this discovery by the Sun Oil Co. and also by the drill stem test of the Jeffries-Lambeth Drilling Co.'s No. 1 Starr County Cattle Co. showing for a big volume of gas. This latter is waiting for casing and will set and complete. The new activity with the exception of the three prospective tests around the Sun block consists in interest rather than drilling up to this time. There are only a few active tests in the county at present. Nothing is being done in either the Los Olmos or Rio Grande City Pools.

Goodwin & Yantis' No. 1 Seabury in the south end of Porcion 107 is down below 2,055 feet and making hole. It is 3 miles north of the Los Olnos shallow pool and 12 miles south of the Sun new field which geologists have named the Cuevitas Pool. Cooper's No. 1 Martinez, 15 miles northeast of Rio Grande City Pool and in Survey 135, is below 3,000 feet on a contract calling for 5,000 feet or production. W. P. Chancellor's No. 1 Guerra, in the extreme northeast corner of the county, was last reported at 1,847 feet and drilling, and B. & B. Oil Co., a few miles southeast of Rio Grande City, is still fishing.

In the southwest corner of Hidalgo County late in the week the Chancellor & Hall No. 1 Garcia ran into a showing of oil and gas at 1,920 feet and was fixing to make a drill stem test.

Government Wells

Navarro Oil Co.'s No. 15 Hahl, farthest north test in the North Government Wells Pool, came in for 40 bbls. an hour on three-quarter inch choke at 2,286 feet, which is about as good a well as there is in the field which it extends to the north. Humble is offsetting it on the east with its No. 8 and Navarro is offsetting No. 15 on the south with No. 14, both of which are due in.

There is still nothing to indicate northern limits to the North Government Wells Field. There are no dry holes to the north or northeast. The nearest is the Sun well in Survey 78, which made a 8-bbl. well 3 miles northeast. It was abandoned, and a mile east of it is the DeSoto Oil Co.'s No. 1 Wood-Welder, a dry gas well in the same sand, and the No. 2 Wood-Welder, 660 feet east of it, drilling and due to go into the sand in a day or two.

The wells that the Navarro Oil Co. is getting in the west half of Survey 360 and those the Humble is getting in the east half of Survey 360 are about average with the average of the best part of the field and at about the same depth.

There is a disposition to believe the field will swing to the northwest, where Magnolia recently completed a well pumping 95 bbls. daily 2 miles northwest of nearest production. Negotiations covering an 80-acre deal are understood to have delayed the testing of the Reynosa Oil Corp.'s No. 1 in Survey 363, a diagonal southeast offset to the Magnolia well and also possibly delayed completion of the Stewart No. 1 in Survey 363 south of the Magnolia. The Reynosa has had casing set for about two weeks and Stewart is close to the sand.

At the south end of the North Government Wells Field Magnolia's No. 1 Hahl-Southland in Survey 61, a direct east offset to the Smith & Storey and Seacord No. 3 Lundell, was completed the past week flowig 15 bbls. of oil an hour on quarter-inch choke. The No. 3 Lundell was a big gas well. It was rated at 150 to 250 bbls. of oil a day, and it extended the field more than a half mile south.

Believe Field Runs Southeast

Smith & Storey have made location for their No. 4 Lundell, 150 feet from the south and east lines of SW NE of Survey No. 48, about 2,000 feet southwest of the Magnolia's No. 1 Hahl-Southland and Kot Oil Co. has made location for No. 1 Lundell, 150 feet from south and east lines of the SE NW of Survey 48, a quarter mile west of the Smith & Storey No. 4 Lundell. These locations are made evidently with the idea that the field will continue in a southeasterly direction.

These wells make more than a half mile southwest extension of the North Government Wells Pool, with no dry holes for a long way to the southwest to indicate limits in that direction.

Following the Government Wells play north into McMullen County there is nothing at this time except the S.R.C. Oil Corp. and Sinclair Prairie Oil Co.'s No. 1 Reeves, which has spudded in in southern McMullen. Other tests are standing.

In the North Kohler Pool (formerly called Peters) Freeman Duggan was swabbing the No. 1 Sutherland late in the week, with no final report available on the outcome, and Allen & Morris have made location for their No. 1 Sutherland in Survey 188. This pool is strung out for 5 miles northeast and southwest and still it is more a prospect than a pool. The discovery gas well on the Peters ranch and one other two locations east of it, the discovery well in the NE SE of Survey 176 are producing below 2,400 feet. The No. 4 Peters at 2,350 feet is a 15-bbl. oil well and is a little over a mile northeast. Brooklyn Oil Co.'s No. 1 Sutherland, a gas well making oil at a little below 2,400 feet, is 1½ miles northeast of it and Duggan is testing his No. 1 Sutherland, a half-mile north of that, but in sand at 2,581 feet. One and a half miles southwest of the two Peters gas wells Windsor Oil Co.'s No. 1 Peters is a gas well at a little below 2,250 feet. The pool therefore at this time consists of several wells from different sands strung out 5 miles.

The Allen & Morris test is spudded in and drilling and in a week may be down to where the sand should be found.

Conway & Campbell's No. 1 Hoffman, 5 miles southeast of the Sarnosa Pool, has started all over again. The first test ran into a good fresh water sand at 260-320 feet and as there had been a shortage of water it was completed there and the rig skidded and spudded in again.

Balcones Fault

C. W. Boler and O. N. Beer's No. 1 Kearney, in southern Bexar County, while drilling the Buda showed a lot of high gravity oil and is continuing to drill. It was held up a little while with a fishing job. Total depth is 1,330 feet. This test made quite a showing in the chalk in the first place and has been attracting attention ever since.

In southwestern Bexar County where a shallow well was completed some months ago by Trussell and others, several independents have been trying to prove up a shallow field with more or less success. Motes-Campbell's No. 2 Pruitt went into a cavity in the Edwards and is setting casing at 1,833 feet. The Bob Ingersoll and others' No. 1 Strumberg, a little to the east of the No. 2 Pruitt, has been standing for months at 1,135 feet, and now is to be cleaned out and put on the pump to see what it will do. It has been flowing a little stream over the top of the casing. Since the showing in the No. 2 Pruitt Motes-Campbell have decided to deepen the No. 1 Pruitt, which has been standing at 1,062 feet.

Fred Perrenot is starting the No. 1 Ruiz in the same territory.

In Bastrop-Caldwell territory C. J. Webster is getting ready to start another test near his No. 1-A McCrory that made a small well in a crevice.

In Bastrop, Marts & Beavens' No. 1 Orgain topped Serpentine at 1,710 feet, a little low as compared with the No. 1 Reyes, and was dry down to 1,760 feet and intending to core a little deeper before abandoning it. This is the first test drilled since the bringing in of the No. 1 Reyes, which made 200 bbls. a day on the pump.

Wildcat Operations in Southwest Texas

Week Ending July 29

Company, well, farm name, section and block—	Remarks:
ARANSAS COUNTY	
Harry Traylor's No. 1 Dietzel, 330 ft. from SW and SE lines of 36-ac. tract in J. Smith Sur.	Moving in rig.
ATASCOSA COUNTY	
A. Blume's No. 1 Shaw, 690 ft. from N line, 1,760 ft. from E line of 100-ac. tract in W. Farquhar Sur. No. 276	T.D. 1,996 ft; twisted off D.S.
E. C. Burton's No. 1 Smith-Mowinkle, 2,100 ft. from N line, 300 ft. from W line of F. Peres Sur. No. 172.	T.D. 560 ft.; drlg.
BASTROP COUNTY	
Adams & Lyles' No. 1 Peter Goertz, 1,075 ft. from N line and 250 ft. from W line of 40-ac. tract in Andrew Mays Sur.	T.D. 2,490 ft; coring chalk.
Detroit Texas' (M. O. Rayor) No. 1 J. W. Miear, 150 ft. from N and E line of 63-ac. tract in McMillam Sur.	Drlg. wtr. well.
J. E. Emanuel's No. 1 H. Klemm, 817 ft. from W line, 300 ft. from S line of tract in R. S. Teal Sur.	T.D. 850 ft; standing.
Ca-Tex O. & G. Dev. Corp.'s No. 1 Harris, 150 ft. from NW line, 3,000 ft. from SW line of John Maxmillian Sur.	T.D. 2,312 ft; running csg.
Ca-Tex O. & G. Dev. Corp.'s No. 1 Pendergrass, 1,343 ft. from NE, 310 ft. from SE line of 150-ac. tract in Henry Warnell Sur.	Rigged up and standing.
Hinton & Dodson's No. 1 Moncure, Highsmith and Burton Surveys, in M. Rosseau League, 8 mi. SW from Bastrop	Machine on ground.
BEE COUNTY	
Nichols & Bruner's No. 1 Grover Heidenfels, 891 ft. to S line, 1,950 ft. to E line of 637-ac. tract survey, John Bryan, 4 miles S from Beeville	T.D. 5,000 ft; drlg.
BEXAR COUNTY	
Amsden & Foster & Amsden's No. 1 S. A. Irrig. Farms, 600 ft. E of Kinney Road, 1,500 ft. N of Elm Creek.	T.D. 1,200 ft.; standing.
O. N. Beer's No. 1 S. W. Kearney, 150 ft. from S and E lines of 35-ac. tract in S. C. I. Peres Sur.	T.D. 1,330 ft; fishing.
A. M. Blume's No. 1 Ridder, 300 ft. from W line, 1,-000 ft. from N line of tract in Sur. No. 58, County Blk. 1,596	Ready to spud.
R. S. Boling's No. 1 J. J. Appelt, 150 ft. from N and W lines of tract in M. Uriegas Sur.	T.D. 330 ft; standing.

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New York Syndicate to Finance Rotary Tests of Three Structures in Southwestern Utah Area

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., July 31.—The Arrowhead Petroleum Corp. and the Escalante Exploration Co. have entered into an agreement for the joint completion of their tests on the Escalante, Punch Bowl and the Antelope Dome in Washington County, Utah. The new combination is reported to have been financed for $450,000 by a New York syndicate headed by Captain Mortimer. The Arrowhead and Escalante companies have 45,000 acres under lease on these structures. The Arrowhead's No. 1-A, SE SW NE Section 1-43-15w, which is bottomed at 521 feet, probably will be completed first. No. 2 Escalante, Section 19-43-15, is bottomed at 3,700 feet, and the Antelope test is standing at 1,522 feet. Heavy rotary equipment is being shipped from California. The contract calls for drilling to a depth of 6,200 feet if necessary.

In Colorado, the William A. Myers' Pennsylvanian test in Moffat County, is resuming. The Rocky Mountain Gas Co.'s oil show on the Craig Dome was unimportant, and the Mountain Fuel Supply Co.'s Sugarloaf test is shut down for orders without encountering commercial production. One well was abandoned in Larimer County.

The Shell Petroleum Corp.'s No. 4-B McKinley, in the Hobbs Pool, New Mexico, tested 139 bbls. an hour. The Texas Co.'s No. 3-A Lynch, in the Lea Pool, extended the productive area half a mile and is swabbing 70 bbls. of oil and 20 bbls. of water. The Continental Oil Co. made a location in the Jal Pool, and a deep test is being started in the Aztec district in San Juan County.

In Wyoming, the Mutual Oil Syndicate is starting another deep well on the Midway Dome; the Ohio Oil Co. completed a 1,000,000-foot gasser at Allen Lake; a small well was completed on Hidden Dome, and a wildcat in virgin territory is being started in Sheridan County.

Montana reported only routine operations with no new locations or completions. Three structures in southwestern Utah are to be tested with rotary.

NEW MEXICO

Lea County

There being no changes in pipe line outlet or connections for the Hobbs Pool, Umpire C. G. Staley announced that Schedule No. 73, used for the last half of June will be in effect for the last half of July.

The Shell Petroleum Corp.'s No. 4-B McKinley, SW NE SW Section 20-18-38, an inside well in the northeastern part of the Hobbs Pool, was completed at 4,231 feet in lime. At 4,190 feet it tested 139 bbls. of oil an hour and 2,500,000 feet of gas. It topped the lime at 4,160 feet and at that depth it tested 100 bbls. per hour.

The Stanolind Oil & Gas Co.'s No. 11 Capps, C NE SW Section 3-19-38, and No. 26 Byers, C SE NW Section 3-19-38, are both shut down for orders after completing cellars. It is reported that the Department of the Interior did not approve the drilling of the wells at the present time.

In the Lea area, the Texas Co.'s No. 3-A Lynch, C NW NE Section 43-20-34, is bottomed at 3,745 feet in lime and swabbing 70 bbls. of oil and 20 bbls. of water a day. The principal pay is at 3,614-22 feet. There was an increase in both oil and water at 3,738-39 feet. This well is a little to the west of the Texas Pipe Line Co.'s tank farm and half a mile north of No. 1 Beulah Lynch, the nearest producer. It is half a mile northeast of No. 1-B Lynch, which was abandoned recently.

Cranfill & Reynolds' No. 4 State, C Lot 10, Section 2-21-33, Lea area, is drilling at 1,600 feet in red rock.

In the South Eunice area, the Carter and Continental Oil Companies' No. 1 State, C NE NE Section 28-22-35, spudded July 13 and is drilling in red sand at 1,013 feet.

A new location released for the Jal area is the Continental Oil Co.'s No. 2 McCallister A-24, NW NE NE Section 24-36-36, a south offset to the Midwest Refining Co.'s No. 34 C. Farnsworth, completed three years ago at 3,235 feet for 675 bbls. initial. It is also a mile to the north and a little east of No. 1 McCallister, a small well completed in 1929 by the Continental company. E. B. Guess' No. 1 Conditt, C SW SW Section 12-25-36, recemented the 10-inch at 530 feet and is waiting.

Eddy County

R. Spearow and others' No. 1 McClellan, SW NW NE Section 22-22-23, Indian Creek, in western Eddy County, is drilling at 3,215 feet in gray sandy lime. This test is drawing close to its principal objective.

Flynn, Welch & Yates' No. 66 State, NW SE SE Section 30-18-28, Artesia area, is drilling at 505 feet in gypsum and anhydrite. The Western Drilling Co.'s No. 2-A Green, C SW NE Section 29-17-29, Jackson area, is shut down at 2,336 feet.

Bernalillo County

The Norins Realty Co., Inc.'s No. 2 Pajarito grant, NW cor. NE Section 29-9n-1e, southwest of Albuquerque, is spudding. Rig was skidded from No. 1, 220 feet to the southeast, which was abandoned at 5,004 feet.

C. C. Owens and others' No. 1 Cantwell, NW cor. Section 5-10n-9e, is reported rigged and ready to spud. The location is 3 miles south of the town of Stanley. Two years ago this well was reported started by the Meyers-Owsley Drilling Co. and to have reached a depth of 266 feet. Owens and associates acquired 23,000 acres out of the block some time ago and are reported planning to go 3,500 feet if necessary.

Elmer Fisher and others' No. 1 Hill, Section 6-10n-7e, Barton district, is shut down at 560 feet. Kelsey Clients Development Estate's No. 2 State, C NW Section 22-10n-10e, is drilling at 835 feet in red shale.

Guadalupe County

The Anton Chico Development Co.'s No. 1 Anton Chico grant, NE cor. SW Section 20-9n-17, is reported changing over to rotary at 2,587 feet. It will pull the 8¼-inch and ream to bottom with an 11-inch bit.

San Juan County

A deep test to the Dakota at 4,500 feet is reported spudding in the Aztec Producers, Inc.'s No. 1 State, NW SE Section 16-29-11w, in the Aztec district. Meier & Culbertson's No. 1, C NE Section 32-30-11w, is a reported location, and R. C. Oswell's No. 4, NW NW Section 33-30-11w, is drilling at 1,424 feet.

The Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor. Section 20-28-10, Kutz Canon, is drilling up bailer at 4,100 feet, total depth.

Valencia County

The Western Natural Resources Corp., Inc.'s No. 2 San Clemente grant, SW cor. NE Section 5-6n-1e, De Chaves district, is bottomed at 4,750 feet in brown shale at which depth it is preparing to change over to rotary.

COLORADO

Moffat County

Operations are being resumed on William A. Myers and others' No. 1 State, NW SW SW Section 16-4n-101, on the Skull Creek, or Midland Ridge Dome, an important Pennsylvanian test which has been shut down at 3,250 feet for several months. The structure is approximately 8 miles long and 3½ miles wide and is eroded to the top of the Tensleep. At its present depth it is below the base of the Tensleep and is estimated to be about 300 feet off of a sand which shows saturation at the outcrop. It will be carried to 4,200 feet, if necessary, to test all possible horizons. A syndicate which will aid in the completion of the well includes Lehman Brothers, Carl Pforzheimer and Joshua S. Cosden, of New York, and the Mountain Producers Corp. The test has had several shows of oil and gas.

The Rocky Mountain Gas Co.'s No. 1 Eberle, SE SW SE Section 9-6n-91, Craig Dome, which stopped to test a show of oil at 1,290 feet, will continue on down to the original objective, a gas sand at 2,800 feet. It is shut down at 1,310 feet waiting for materials. The oil show amounted to about 10 bbls. per day of 18 degrees gravity paraffin base crude.

The Texas Co.'s No. 1 Iles Investment, SE NW Section 23-4n-92, Iles Dome, is rigging up rotary. It will go to the Sundance.

The Mountain Fuel Supply Co.'s No. 1 Hatch, SE NW SW Section 9-11n-101, Sugarloaf district, is shut down for orders at 3,519 feet. It had some shows of oil and gas in the upper beds, apparently drilled into a fault, and had nothing commercial. The same company's No. 1 Wheeler, SE NW NW Section 30-12-100, West Hiawatha, is drilling at 715 feet, and its No. 2 Florence Wilson, C NE NE Section 22-12n-100, Hiawatha Dome, the deep test to 7,000 feet, is coring and drilling at 4,793 feet.

Jackson County

The Ute Oil & Gas Co.'s No. 1 Mosman, C SW SW Section 33-9n-78, South McCallum district, will build standard rig to replace a small rig rented from Ike Mosher, which is being moved to the Tow Creek Field in Routt County. It is reported that Mr. Mosher will drill a test north of production in Tow Creek for Wells and Destin, of California.

Park County

The South Park Oil Co.'s No. 1 Milligan, NE cor. SE Section 13-8s-76, Jefferson district, shut off water by mudding the 4¾-inch at 3,039 feet, total depth 3,042 feet, and is preparing to resume. The South Park Oil & Gas Co.'s No. 1 Esche, SE cor. NW Section 5-9s-76, Como district, is shut down at 2,465 feet.

Larimer County

C. Leonard Smith's No. 2 Union Pacific, SW cor. Section 31-12-69, Sand Creek, is shut down temporarily at 660 feet.

Art Deininger and others' No. 1 Kistler, C Section 2-4n-70, northwest of Berthoud, topped the granite at 380 feet and was abandoned at 399 feet.

Boulder County

The Consolidated Smelting & Metals Co.'s No. 1 Blubaugh, SE cor. Section 20-3n-70, Lyons district, is bottomed at 845 feet and will recement the 4¾-inch at 840 feet to shut off water before testing the objective sand.

Fremont County

The Waterville Oil Co.'s No. 1 State, SE cor. NW Section 16-18-69, Phantom Canon, is preparing to run the 5-7/16-inch at 2,203 feet. This test started in the red beds in 1929 and has the Pennsylvanian as its objective. The Cherry Creek Placer Co.'s No. 1 Lucas, SW cor. NE Section 32-18-69, Florence district, is drilling at 2,160 feet in black shale.

Las Animas County

The Continental Oil Co.'s No. 1 Maxwell grant, NE NW NE Section 29-34-68, Tercio district, which had 900 feet of water in the Dakota at 1,348 feet, is fishing for bit at 1,360 feet.

WYOMING

Natrona County

The Mutual Oil Syndicate, S. H. Keoughan and associates are preparing to drill another deep test on the Midway Dome in its No. 1 Boyer, SW NE NE Section 23-35-79, which was put down to the Shannon sand at 2,431 feet with a portable rotary outfit. A 124-foot derrick and heavy rotary rig are being erected and operations will be continued with the company's own crew. The Shannon was found 13 feet higher in this well and in any well drilled on the structure. It is 660 feet southwest of No. 11 Middy, the deep test drilled by the Midwest, which was plugged back to the second Wall Creek and put on production two years ago at 5,193 feet. This well was cleaned out the past week and responded with a production of 190 bbls. first 24 hours on the pump.

The Lakota Oil & Gas Co.'s No. 1, C NW Section 4-36-81, Segment Basin, is rigged and ready to spud as soon as permit to drill is issued.

Carbon County

The Ohio Oil Co.'s No. 1 A. J. Hazlett, NE NW Section 34-23-79, Allen Lake, was completed for 1,000,000 feet of gas per day in a sand in the upper Morrison at 1,689-1,710 feet. The gas will be used for fuel for several additional wells to be drilled to lower formations, including a deep test. A gas supply is being developed for and a pipe line will be laid to the town of Medicine Bow, 4 miles away, at once. One of the company's old wells in the Dakota will be cleaned out and deepened to this horizon before any other test is started.

The Mutual Oil Syndicate's No. 9 Dutton Creek, NW NE Section 12-18-78, Dutton Creek, which will go to the Dakota at 5,000 feet, is drilling with rotary at 2,300 feet. Earl W. Reeder, Inc.'s No. 1 Union Pacific, C SW SW Section 19-20-83, Overland Dome, is drilling at 1,700 feet.

Albany County

S. Marvin James & Co.'s No. 1 Hindry, C SW SW Section 10-13-76, River-

side district, is shut down below 1,515 feet.

Converse County

James A. Brady and others' No. 1, NE Section 17-31-71, Warm Springs district, is drilling at 700 feet, probably in the base of the Tensleep. It had shows of oil at 210 and 250 feet. All possible producing sands are expected to be tested within 1,650 feet.

Weston County

The LeFaivre Oil Syndicate's No. 1 Martin, NW SE Section 29-45-68, Buck Creek, is drilling at 1,850 feet. First Wall Creek is expected at 2,500 feet.

J. H. Voorhees and others' No. 1, NE cor. NW Section 26-48-64, Pump Creek, is drilling at 300 feet.

In the Osage Field, the Federal Oil Co.'s No. 5, SE cor. Section 15-46-64, is building rig, and the Riggs Oil Co.'s No. 3, SE NE Section 16-46-64, is drilling at 1,000 feet. The Lincoln Oil Syndicate's No. 1, SW cor. SE Section 10-46-64, cemented the 6⅝-inch at 1,650 feet and shut down.

Crook County

The Elmore Syndicate has purchased the interests of J. H. Voorhees and others in its operation on the Wind River structure. The Johnson Drilling Co. has been given the contract for completion of its No. 1 Lukas Cost, SE SW NW Section 1-49-66, and is moving in a Star 28 to replace a small rig with which the hole was drilled to 530 feet. The Muddy, Dakota and Lakota are expected inside of 1,000 feet, total depth.

Sheridan County

R. D. Houghton, of California, and Walter Mumper, of Florida, are reported to be ready to test the Beaver Creek structure. It is virgin territory. Their No. 1 C. C. Allison, 10 miles southwest of Sheridan, is rigged and ready to spud. First objective is expected at 3,500 feet, but the test will go to 4,500 feet, if necessary.

Park County

The Wyoming Petroleum Co.'s No. 1 Kirk, SW NW NE Section 25-58-98, Frannie Dome, is an abandoned location. Some material was moved on to the lease last May.

Hot Springs County

The Empire State Oil Co.'s No. 4 Republic, NE NW Section 14-44-98, Hamilton Dome, is drilling at 1,300 feet.

Washakie County

The Bales Oil Trust's No. 2 Brome, NE NW NW Section 31-48-90, Hidden Dome, a north offset to its producer, was completed in the Frontier at 1,468-1,504 feet, and is estimated good for 10 bbls. per day. L. S. Keyes and others' No. 1 Bales, NE SW NW Section 31-48-90, is rigged and ready to spud.

Fremont County

The Texas Co.'s No. 2 State-Ridgway, SE SW SW Section 36-34-95, Alkali Butte, is standing cemented at 4,660 feet.

Sweetwater County

The Mountain Fuel Supply Co.'s No. 2 Cappers, SW cor. NW Section 12-19-104, North Baxter Basin, showed for 3,000,000 feet of gas in the Dakota topped at 3,047 feet and is drilling at 3,125 feet on its way to the Lakota. The Same company's No. 3 Poston, C NW NW Section 22-16-104, South Baxter Basin, is rigging up.

Sublet County

The Woolf Petroleum Co.'s No. 3-L, SE SW SW Section 5-27-113, LaBarge Field, is drilling at 1,600 feet.

MONTANA

Glacier County

Routine operations marked the developments in the Cut Bank Field the last week, there being no completions or new locations.

The Alberta-Pacific Consolidated Oil Co.'s No. 2 Matson, SE NE SW Section 14-34-6w, which had salt water in the Stewart sand at 2,835-63 feet, recemented the 6⅝-inch at 2,881 feet after the first attempt failed to make a shutoff. It is bottomed at 2,883 feet, 2 feet in the Darling sand. Same company's No. 2 Kiesel, SE cor. NW Section 11-34-6w, is drilling at 1,960 feet.

A. B. Cobb's No. 1 Walburger, SW cor. SE Section 35-34-6w, is drilling at 240 feet.

The Dakota-Montana Oil Co.'s No. 2 Haglund, Sr., NE NE Section 14-34-6w, is rigged up, and its No. 1 Matson, SE NE NW Section 14-34-6w, is drilling at 2,000 feet.

W. M. Fulton and others' No. 1 Haggerty, NE cor. Section 16-34-6w, is shut down at 2,952 feet for financial adjustments before drilling into the sand. The Hannah-Porter Co.'s No. 1 Britton, NW NE NE Section 23-34-6w, was given a shot of 180 quarts at 2,858-85 feet and is having pipe trouble. J. W. Johnson's No. 1 Ewing, C NE NE Section 3-34-6w, is spudding.

The Montana Headlight Oil Co.'s No. 1 Britton, NW SW NE Section 14-34-6w, topped the Colorado at 510 feet and cemented the 12½-inch at 550 feet. Its No. 2 Britton, SW NW SE Section 14-34-6w, is moving in rig, and its No. 1 Williams, NW cor. NE Section 11-34-6w, is drilling at 2,025 feet. The two last named formerly were carried under the name of R. C. Tarrant.

The Montana Power Gas Co.'s No. 1 Brown, C NE Section 31-35-5w, is drilling at 1,780 feet, and its No. 1 fee, SW cor. Section 1-35-5w, is drilling at 240 feet. Same company's No. 1 Vermont Loan & Trust, Sections 21 and 28-36-5w, is drilling at 260 feet.

The Par Oil Co.'s No. 1 Haines, SE SE Section 2-34-6w, is still swedging pipe at 2,845 feet, total depth.

The Santa Rita Oil & Gas Co. and Sweeney's No. 1 Jacobson, C NW NW Section 23-37-5w, North Cut Bank, pumped 62 bbls. in 20 hours and showed some water. The Yukon Oil Co.'s No. 1 Marie Krueger, C SW SW Section 14-37-5w, formerly carried as the Santa Rita company, is drilling at 265 feet.

R. C. Tarrant's No. 2 Haglund, Jr., C NW SE Section 13-34-6w, is bottomed at 2,747 feet and preparing to run the production string, and his No. 3 Haglund, Jr., C SE NE Section 13-34-6w, is rigging up. Tarrant's No. 1 Hope, C SW SW Section 18-34-5w, was given another shot with 60 quarts and oil rose 350 feet in the hole. The 6⅝-inch is at 2,688 feet and total depth is 2,763 feet. His No. 1 Larson, C SW NE Section 12-34-6w, is building rig.

The Texas Co.'s No. 1 Fisk, C NW NE Section 14-35-6w, cemented the 10-inch on bottom at 148 feet.

Liberty County

The Western Natural Gas Co.'s No. 2 Hicks, NW NE Section 26-37-4e, Whitlash district, is drilling at 300 feet, and its No. 2 Mahoney, SE cor. NE Section 23-37-4e, is rigging up.

Petroleum County

The Minnesota-Flatwillow Oil Co.'s No. 1 Farrell, C SW SW Section 5-15-29, Cat Creek, is drilling at 980 feet, and its No. 1 Post, NW NE NE Section 8-15-29, found water in the first Cat Creek sand at 1,565-70 feet and is shut down. The Oregon-Flatwillow Oil Co.'s No. 1, SE cor. Section 3-13-26, Flatwillow district, resumed at 1,232 feet.

Toole County

Frank Miller's No. 1 State, NW cor. NE Section 26-34-1w, is shut down on top of the sand at 1,375 feet.

SOUTH DAKOTA

The Weaver Oil Co.'s No. 1, NW cor. Section 32-2s-22, Kadoka district, Jackson County, is waiting for fuel at 2,430 feet.

Discoveries in North Cut Bank and Twin River Stimulate Activity in South Alberta Fields

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, July 31.—Following the completion of Nordon-Roney's No. 2 Twin River, which has opened a new potential field south and east of Lethbridge and just north of the Montana boundary, the finding of production on the North Cut Bank structure in Montana by Sweeney-Rita's No. 1 Lee Jacobson has stimulated fresh activity on the Canadian side of the boundary. Madison Oils, Ltd., of Calgary is spotting a test in Section 7-1-17w4 on the Alberta side, a few miles south of the Sweeney well. Drilling equipment for the new test is being moved from Turner Valley, and camp buildings from Southern Alberta Exploration Co.'s No. 2 in the Red Coulee Field are being transferred to the Madison acreage. Test should spud in early in August.

Further east, on the Alberta end of the international Reserve Dome structure, Rialto Oils' No. 1, LSD 4, Section 15-1-9w4, is skidding rig from Mayland Southern's No. 1, LSD 13, Section 4-1-9w4. The latter test got gas in several horizons and finished at 3,000 feet without striking oil. The new test is also being drilled by the A. H. Mayland interests of Calgary, which hold a block of about 15,000 acres on the Reserve Dome. The new location is about a mile east and north of Mayland Southern's No. 1, on the Dawson terrace of the Reserve Dome. Test is expected to spud in within a few days. Location is about the center of the Mayland holdings.

Some 30 miles east of the Twin River structure, preparations are being made for new drilling in the Skiff Field by Devenish Petroleums, Ltd., of Calgary. The company controls 70,000 acres on the structure, and two out of five wells drilled showed asphaltic crude at depths around 3,079 feet. It is understood W. C. McKnight, formerly of California, will have charge of field operations. The company is reported planning a series of tests, one of which may be drilled in LSD 9, Section 25-6-15w4.

North Turner Valley

In the North Turner Valley, Model Oils' No. 2, LSD 16, Section 22-20-3w5, is drilling below 6,150 feet. The drill is still working in the Madison with no material change in formation. Some fair wet gas shows with a little crude oil were met higher in the lime, and the hole is reported in excellent shape for deeper drilling.

Central Turner Valley

In the Central Turner Valley, McLeod Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, has been cleaned out and deepened to restore naphtha production, and is awaiting completion of the government test. The hole, originally down 3,951 feet, with wet gas production from the lime was damaged by an explosion about two years ago and has been off production for some time. It has been cleaned out and deepened to 4,100 feet. When testing is finished, work may be resumed on McLeod's No. 4, same LSD, which has been standing at a record depth of 7,755 feet.

Okalta Oils' No. 4, LSD 8, Section 1-20-3w-5, is redrilling below 800 feet to test the light crude horizons above the lime. The original hole bottomed at 1,657 feet but was bridged back by cavings to about 600 feet.

New McDougall-Segur Oil Co.'s No. 6, LSD 11, Section 12-20-3w5, is at 3,100 feet and running 8-inch casing. The well logs deeper than the other tests in this area, but is close to the potential light crude horizon, after encountering two smaller shows in the upper sands.

Miracle Test Gets Lime

In the Mercury tract, Miracle Oils' No. 2, LSD 16, Section 5-19-2w5, got the Madison limestone at 5,940 feet and is cementing casing in top of the lime. The test is being completed by Mercury Oils, Ltd., after standing for a couple of years.

South Turner Valley

In the South Turner Valley area, some further new drilling is in prospect. Frank D. Lundy of the Hoffar-Lundy syndicate and Ray R. Knight of Vancouver are negotiating with Pacific Coast interests for a new test on acreage in Section 28-18-2w5.

Spooner-Anaconda's No. 1, LSD 1, same section, is reported digging cellar for a new test to spud in next month. Location is near the Mar-Jon-Freehold's No. 1 producer, and the test will be drilled by Spooner Oils, Ltd., on acreage of the Anaconda Oil Co.

Publix Oil & Gas Co.'s No. 1, LSD 8, Section 28-18-2w5, is preparing to resume after setting 21-inch surface casing at 110 feet. Pacalta Oils' No. 1, LSD 7, same section, is drilling below 1,600 feet. Mar-Jon Oil Co.'s No. 2, LSD 10, same section, is reported drilling below 200 feet.

Livingston Syndicate's No. 1, LSD 5, Section 34-18-2w5, which has been standing at 2,160 feet, is cleaning out and running casing preparatory to going deeper. Sterling Royalties' No. 1, LSD 1, Section 33-18-2w5, is drilling below 700 feet after making first shutoff. This rotary test is making rapid headway, making 275 feet of hole in a single day's drilling.

Anaconda Has Gas Flow

Becker Syndicate's No. 2 Anaconda, LSD 15, Section 28-18-2w5 is drilling below 3,250 feet and preparing to run 10-inch casing. The test encountered an additional gas flow in the McDougall-Segur sand below 3,000 feet. With the gas previously struck in the Blairmore formation, the well has a potential production around 6,000,000 feet a day.

Tests in Far South

In the far south end of the field, Union Drilling Co.'s No. 1, LSD 8, Section 21-18-2w5, is preparing to resume after cementing at 480 feet. Hoffar-Lundy Syndicate's No. 1, LSD 13, Section 22-18-2w5, is reaming below 2,600 feet to carry 13⅜-inch casing, which will be landed around 3,000 feet.

Highwood-Sarcee Oils, Ltd., of Calgary, headed by A. W. Dingman, pioneer of the Turner Valley Field, has located a test in Section 21-18-2w5, approximately a mile south of the nearest production. It is west of Hoffar-Lundy Syndicate's

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Hart County Test Points to New Kentucky Pool; McClanahan Gets Good Well in Michigan

By GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

BOWLING GREEN, Ky., July 31.—Completion of a test well, No. 11 W. B. Perkins, 2,244 feet deep in the LeGrande Field of Hart County by the Hillside Oil Producing Co. and the Anna K. Wilson Co. has aroused interest in view of the fact that it is one of the deepest tests drilled on the western side of the big Cincinnati arch and that it found the St. Peters sand, which geologists say is the same as the Wilcox sand of Oklahoma. This sand was pure silica, 100 feet thick. As the test was extremely low on the Cincinnati arch, really about 30 miles from its apex, the sand carried salt water.

Another well is being drilled near Breeding, in Adair County, about 26 miles east of No. 11 W. B. Perkins and 900 feet higher on the structure. It is understood that this well is to go down to the St. Peters, or Wilcox sand, and it will be the first well drilled as deep as 2,000 feet so near the Cincinnati arch structure in Kentucky. It is believed likely that this well will either carry oil or gas, and that it may open up a large pool, and this is regarded as the most important test drilled in Kentucky for years. It is necessary to go to that depth to get through the Trenton and into the St. Peters.

Several test wells have been drilled in Cumberland County, Kentucky, and have gone down as deep as 1,200 feet. Two of these wells found oil in commercial quantities. The interesting thing about this is that Cumberland County has been producing oil for about 40 years, and is close to the Cincinnati arch, which is one of the biggest structures in the United States, and up to this time it was not known that the St. Peters of Kentucky, or Wilcox of Oklahoma sand, was under this region and was productive.

McClanahan Completion

The best completion of the week in the Central Michigan area was the McClanahan Oil Co.'s test 330 feet from the north line and 1,320 feet from the east line of the G. R. Hathaway farm, in the S half S half NE Section 17, Porter Township, Midland County, and about two locations south of the No. 1 Muscott farm well, which came in with a rush, pouring out 1,710 bbls. in 24 hours. The well was drilled approximately 26 feet into the Dundee formation. The supposition is that it struck a structure similar to that of the Pure Oil Co.'s big well on the State-Porter farm, in Section 15, of the same township, where offsets have failed to come within the range of the first well's production. The opinion is that the McClanahan well shows an extension of prolific pay extending westward.

Two weeks ago Strange and others brought in their No. 1 on the Campbell farm in Section 17 with an estimated flush production of 600 bbls. and now reported to be 350 bbls. Late reports are to the effect that another exceptionally good producer has been brought in by the Strange interests, 330 feet from the south and west lines of the Sam Walley farm, in the SW SW SE Section 16, Porter Township. The well is said to be producing at the rate of better than 800 bbls. in 24 hours and will be drilled deeper into the Dundee later on.

Stewart & Gordon's No. 3, 990 feet from the south line and 330 feet from the east line of the J. B. Richmond farm, in the NE SE NW, Section 22, Porter Township, Midland County, reported with an initial of 300 bbls.

Pure Oil Co.'s No. 3, in the southwest corner of the Mina Naramore farm, in the SW SW SW Section 15, same township, had an initial of 300 bbls., at 3,472 feet.

Walter F. Felton and others' test, 1,913 feet from the north line and 602 feet from the east line of the F. M. Miller farm, in the SE SE NW Section 10, Greendale Township, Midland County, reported with an initial of 100 bbls. at a total depth of 3,567 feet.

Johnson & Kirkham's test in the northeast corner of the Frank Otway farm, in the NE NE NE Section 27, Porter Township, was a dry hole.

Hopes of Another Pool Dimmed

Hopes for the finding of another pool in the Central Michigan Field were dimmed when water showed up at 62 feet in the Dundee formation, without any showing of oil in the test drilled by the Michigan Gas & Oil Co., on the W. Busche farm, in the C SW SW Section 10, Wise Township, Isabella County. According to reports structural indications had run fairly favorable. The well was 6 miles east and north of Vernon Township production. The failure of the Busche test does not condemn the entire area and it is believed likely that other tests in the township will be projected in the future. The township is heavily leased.

Drilling Permits

Drilling permits were issued to Fred W. Turner for No. 3, 990 feet from the north line and 330 feet from the east line of the C. L. Baxter farm, in the SE NE NE Section 22, Porter Township, Midland County; to Strange & Fortney for No. 2, 330 feet from the north and east lines of the J. W. Campbell farm, in the NE NE SE Section 18, same township and county; for No. 3, 330 feet from the north and west lines of the J. W. Campbell farm, in the NW NW SE Section 18, same township and county; to Templemayr & Tope and others for No. 1, 330 feet from the south line and 990 feet from the west property line of the Edward Reakes farm, in the SE SW NW Section 15, Vernon Township, Isabella County; to J. C. Arthurs for No. 1, 330 feet from the south and east lines of the Stuart Beatty farm, in the S half S half NE and N half N half SE Section 21, same township and county; to H. C. Nelson for No. 1, 356 feet from the south line and 420 feet from the west line of the Clarence Spittler farm, in the SW SW NE Section 11, Austin Township, Mecosta County; to the Ide Oil & Gas Corp. for No. 1, 330 feet from the south and west lines of the Chester Thayer farm, in the SW SW SE Section 10, Vernon Township, Isabella County; to W. L. McClanahan, Inc., for No. 2, 990 feet from the south line and 330 feet from the west line of the C. Schaffer farm, in the NW SW SW Section 12, Greendale Township, Midland County; to McClanahan Oil Co. for No. 2, 990 feet from the south line and 1,320 feet from the east line of the G. R. Hathaway farm, in the N half S half NE Section 17, Porter Township, Midland County; to the Theodore Oil Co. for No. 3, 990 feet from the north and east lines of the Adrain Steed farm, in the SW NE SE Section 8, Greendale Township, Midland County; to the Michigan Producers & Refiners, Inc., for No. 1, 990 feet from the south line and 330 feet from the west line of the Bond heirs' farm, in the NW SW NW Section 14, same township and county; to the Davis Oil Co. for No. 1, 330 feet from the north and east lines of the H. Nitzke farm, in the NE NE NW Section 21, Porter Township, Midland County.

Change in location: C. E. Teater's No. 1 Wale permit should read, NW NW NW Section 22, Township 13, Range 1w, 330 feet from the north and 330 feet from the west lines of quarter section, 330 feet from the north and 330 feet from the west property line.

Gets Traverse Sand Well

The Stewart-Gordon No. 3 on the J. B. Richmond farm, in the NE SE NW Section 22, Porter Township, Midland County, was not drilled to the Dundee formation, as it found its oil in the Traverse lime formation. For the first 12 hours the well produced at the rate of 15 bbls. an hour with a good gas pressure back of it, and it will not be drilled to the Dundee in case it holds up to commercial production, as deeper drilling can be done at any time.

Field Pickups

An important test by the Columbia Oil & Gas Co., in the northeast corner of the W. Travers farm, in the NE NE SE Section 32, Greendale Township, Midland County, is reported setting casing to the Dundee formation, and being closely watched by operators in the field. This test is 2 miles due west of the Pure Oil Co.'s Yost wells and will open a new drilling play in southern Greendale if commercial production is encountered.

On the west border of Porter Township, Midland County, William J. Wilson, trustee, is drilling below 2,800 feet at a test in the northeast corner of the William M. and Sophia Carter farm, in the NE SW Section 18, and drilling below 1,500 feet in a test in the northeast corner of the Glen R. and Mildred Hathaway farm, in the NE NW Section 18, same township.

The Greendale-Lee Oil Development Co. is delayed by a fishing job in a test in the northwest corner of the Willard Hitsman farm in the NW NW SW Section 13, Lee Township, Midland County.

A. P. Scheid is drilling below 2,500 feet in a test in the northwest corner of the Cecil and Mary I. Acker farm, in the NW NW NW Section 24, Porter Township, Midland County.

Another well closely watched is Thompson & Fortney's test in the southwest corner of the Gilbert A. Currie farm, in the SW SW SW Section 16, Mount Haley Township, Midland County, which is reported drilling below 3,425 feet, and close to the Dundee formation. This well is about 2½ miles east and north of production in Porter Township.

Mellon-Pollock Oil Co.'s test in the northwest corner of the John Stough farm, in the NW SE SW Section 23, Vernon Township, Isabella County, is drilling below 3,000 feet, and the Mammoth Petroleum Co.'s test in the northwest corner of the Verrethe farm, in the NW SE SE Section 23, same township, is drilling below 2,500 feet. Strange & Flynn's test, 210 feet from the south line and 1,332 feet from the east line of the W. E. Currie farm, in the SE SW SE Section 5, same township, is drilling below 3,500 feet and near the top of the Dundee, and if it comes in a commercial producer, it will add territory to the field.

Melvin Brothers, trustees, are drilling below 2,000 feet at a test on the Charles M. Smith farm, in the SE SW NE Section 23, Denver Township, Isabella County.

Charles C. Flarida and others' test, 1,913 feet from the north line and 600 feet from the east line of the Pringle heirs' farm, in the NE SE NW Section 14, Greendale Township, Midland County, is below 2,800 feet.

CENTRAL WEST

There is a slight increase in development work in parts of the Central West Field, compriaing the Lima Field, Central Ohio, and other divisions, with the Central Ohio, source of natural gas for lines throughout Ohio and other points, leading in new work under way.

In the Lima Field of northwestern Ohio, one well was completed, Murphy & Son's No. 1, on the L. H. Houpt farm, Section 8, Tymochtee Township, Wyandot County. It is a fair gas well at 1,440-51 feet.

Tne recent find of shallow gas in the Bryan area of Williams County, in the northwestern part of Ohio, may bring about much shallow drilling there for gas for heating purposes. The original test of that area by Charles Anderson in the well drilled on the Spangler Candy Co.'s property, showed an 85-pound pressure.

Fifity-five wells have been abandoned so far in July, in the Lima Field.

Wyandot County is the most active development in the Lima Field, with results good in both oil and gas. In Crane Township, the Upper Sandusky Oil & Gas Co. is drilling No. 3 on the N. and H. Saltsman farm, Section 28, and recently it struck a 200-bbl. producer along with gas at 1,334 feet. The gas has been run into the line in that field, the volume being better than 1,000,000 feet. Newcomer and others are still shut down at 1,918 feet in a test on the Albert Reber farm, Section 1, Pitt Township, same county. McPheron and others are starting No. 1 on the A. E. Myers farm, Section 3, Crane Township. Ferdell and others are starting No. 1 on the Mary E. Sampson farm, Section 20, same township. A test is also drilling on the Ira Schoenberger farm, Section 20, same township.

CENTRAL OHIO

The Central Ohio Field had nine completions, two oil producers, three gas wells and four dry holes. In Medina County, L. F. McGrath's No. 3 on the L. A. Severcool farm, Lot 1, Litchfiled Township, was a dry hole from 264-68 feet, and No. 4, same farm, produced 30 bbls. of Berea sand oil at 260-346 feet. In Chatham Township, same county, Eakin & Curtis' No. 7, on the H. Broadsword farm, Lot 21, was dry in the Berea from 379-439 feet, and No. 8, same farm, was dry from 337-84 feet.

In Coshocton County, Palmer & Deisinger's test on the Sol Hahn farm, Lot 8, Clark Township, produced an initial of 8 bbls. at 3,576-81 feet. The Ohio Oil Co. is drilling a test on Rhode heirs' farm, same lot. Hulse-Kundtz, Inc., has a rig in for No. 2 on the Rolla McKee farm, Section 17, Perry Township, same county. Preston Oil Co.'s No. 1 D. D., on the Cary D. Harris farm, Section 17, same township, is drilling around 2,500 feet. Wiser Oil Co. is drilling below 2,850 feet at a test on the Patterson and Crawford farm, same section.

In Licking County, C. O. Moore drilled in a dry hole in No. 2 on the William

Penick farm, Section 12, Eden Township, at 677-80 feet. Wehrle Gas Co. reports a gas and oil showing in a test on the G. W. Kreager farm, at 2,256-60 feet, and in the lime formation, and it should make a commercial producer. McClay Brothers' No. 2, on the Fern Smith farm, Section 17, Fallsburg Township, same county, also makes a good show of gas and oil at 2,887-2,928 feet and will be reported after being tested. Floyd Golden is shut down at 410 feet in No. 7 on the G. W. Smith heirs' farm, Section 17, Perry Township, same county. Wehrle Gas Co. has a rig in for No. 2 on the Gail Baker farm, Lot 1, Granville Township, same county.

The Mid-East Oil & Gas Co. has a rig up for a test on the R. A. and R. D. Amerine farm, Section 30, Muskingum Township, Muskingum County.

In Athens County, the Twenty-five Associated Co. brought in a gas well on the Coloway farm, Section 17, Berne Township, at 1,079-82 feet. John Bowman is drilling No. 4 Lovell farm, same township.

Stark County Active

Stark County, the most active county in the Central Ohio Field, reports only two completions for the week, the Canton Drop Forge Co.'s test on its own property, in Section 9, Canton Township, which is a gas well at 4,560-85 feet, and White and others' No. 1, on the Sarah L. Lorenz farm, Section 17, Plain Township, same county, at 4,464-4,553 feet. White and others are drilling below 4,150 feet in No. 1 on the T. and H. McDowell farm, Section 16. No. 1, on the Paul B. Belden farm, Section 18, is reported drilling in. No. 2 on the Charles and Stella Strausser farm, Section 9, is drilling below 4,100 feet, and the same firm is below 2,100 feet in No. 1 on the Jacob Isler farm, Section 25, same township. Brendel Producing Co. is below 4,500 feet in a test on the David and Nora Frederick farm, Section 10, Marlboro Township, same county. In Plain Township, the Hoover Development Co. is drilling below 3,550 feet in a second test on the Hoover Co. property, Section 18, and is below 2,640 feet in No. 1 on the same property, in Section 20. East Ohio Gas Co. is drilling below 3,920 feet in No. 1 on the J. W. and C. Shook farm, Section 7, Jackson Township. Plain Natural Gas & Heat Co. is drilling below 2,680 feet in No. 1 on the Levi A. Stoner farm, Section 20, Plain Township, same county.

In Tuscarawas County, Frey and others are drilling below 4,250 feet at No. 1 on the H. B. Gobert farm, Section 7, Fairfield Township, and Lyons & Piefer are drilling below 4,075 feet in No. 5 on the J. H. Weaver farm, Section 5, same township and county. In Washington Township, same county, the Gordon Oil Co. is shut down for orders at 3,662 feet on the Dolly Huffman farm, Lot 25.

City Natural Gas Works is drilling No. 3 on the Andrew Ellinger farm, Section 9, Pleasants Township, Fairfield County, also drilling No. 2 on the Lorenzo Shaffer farm, Section 13, Goodhope Township, Hocking County.

ILLINOIS

Development work in the Illinois Field is quiet and only one well was brought in. Frank Ellison and others' No. 2, 400 feet from the north line and 800 feet from the west line of the Abe Pleasant farm, in the NW Section 36, Robinson Township, Crawford County, which produced 7 bbls. initial at 1,182 feet. In Lamotte Township, same county, Karns, Kincade and others' test on the H. C. Apple farm, in the NE Section 29, looks like a water hole at 1,120 feet.

In Lawrence Township, Lawrence County, the Ohio Oil Co. abandoned No. 3 on the Thomas Smith farm, Section 14, and the International Oil & Gas Co. abandoned No. 7 on the McCrosky heirs' farm, in the SW Section 25, Dennison Township, same county.

INDIANA

A few completions were reported from the Indiana Field, the best being Harry N. Bell and others' No. 1, in the northwest corner of the John C. Shay farm, in the SW Section 17, Washington Township, Pike County, with a gas volume of slightly over 3,500,000 feet, found at 1,022-27½ feet. The same interests drilled in No. 5, 330 feet from the north line and 1,000 feet from the east line of the R. N. Craig farm, in the NE Section 20, same township, and it shows for around 500,000 feet, at 1,086-1,104 feet. Indiana Southwestern Gas Corp. got a dry hole in a test on the Dicky Keith farm, in the NE Section 18, same township. Charles C. Taliaferro, Jr., is drilling a test on the Hugh McCain farm, same section, and H. H. Risher has a rig in for a test on the Ada Hale farm, Section 30, same township. Indiana Southwestern Oil & Gas Co. has a rig in for a test on the Otto Thomas farm, Section 15, Jefferson Township, same county.

In Vigo County, Pierson, Yeager and others' test in the northeast corner of the Ura Johnson farm, in the SE NE Section 17, Prairie Creek Township, is a gas well at 876 feet.

KENTUCKY

In the Kentucky Field one well was reported, Brenner & Adams' No. 4, in the southwest corner of the R. E. Jackson farm, in the Cane Run Pool, Daviess County, with an initial of 5 bbls. at 664 feet.

Requirements of Major Buyers in Eastern Fields Permit Continuance of Normal Production

By STAFF CORRESPONDENT

PITTSBURGH, Pa., July 31.—As far as the major purchasers of crude oil in the eastern fields are concerned, normal production will be continued, or 100 per cent of the base, an average around November, 1931. The South Penn Oil Co., the largest purchaser in the lower eastern fields, stated that for August its requirements were such as to permit 100 per cent production. Thus operators who have acquired stocks above ground will be permitted to run enough additional oil to augment the totals from declining wells.

In the upper country, the Bradford, Pa., and Allegany, N. Y., districts, purchasers of crude announced a similar allowable or a 100 per cent ratable.

In spite of the permitted 100 per cent in the lower fields production has changed little from the previous month when 90 per cent was the ratable. After 18 months of curtailment, all districts are finding it difficult to return their wells to normal production. With the present market price of crude, though it is 50 per cent above its low, operators are loathe to attempt a heavy reconditioning program.

In West Virginia the second test of Frank Finley and others on the Boehm & Neeley (Strickler heirs) lease in Lost Run Pool, Clay district, Ritchie County, continues to flow and it is the best producer in the State in several years. After producing 530 bbls. the first day as soon as the Injun sand was tapped it produced the second day 770 bbls. natural and it has averaged better than 450 bbls. a day for the past week. The second test is located 250 feet southeast of the No. 1, which came in at 25 bbls. a day.

So far about 2,000 feet on a line northwest of the Hinton farm well has been proved. Two tests west of the line have failed of production. No tests on a line from the L. E. Robinson farm to more eastern Injun sand wells have been made. A new location for a test has been made in this district by Robert E. Elder, who is rigging up on the S. E. Satterfield farm adjoining the Michael Moran farm, on which was drilled a dry hole. The Richards Farm Oil Co. has rigged up for a second test on the Frank R. Ball farm. The Hinton Farm Oil Co. has spudded in and started drilling No. 3 on the L. E. Robinson farm.

In the lower eastern fields during the past week, four wells with an initial production of 48 bbls. and five gas wells were completed. One of the gas wells was a fair test. There were also two dry holes.

WEST VIRGINIA

No oil producers were completed in West Virginia. Completions consisted of four gas wells and one dry hole. In Calhoun County two gas wells were completed. In Sherman district C. W. McCall and others completed drilling their No. 2 on the Hamilton, Jarvis and Garrett lease deeper from the Salt sand down to the Injun sand to 2,285 feet. It is a gas well at that depth rated close to 450,000 feet a day. In Washington district, Grant Fowler completed a test on the O. W. Grove farm in the Big Injun sand at a depth of 1,890 feet. It will also make a gas well.

In Wayne County the Cisco Drilling Co. completed a test on the Sampson B. Bailey farm in the Berea sand at 3,137 feet. It is showing for about 700,000 feet a day. This test is in Ceredo district.

In Pleasants County, Dinsmoor & Co. drilled a test on the Delia Cornell farm in Jefferson district. It was abandoned in the Cow Run sand, which proved dry.

In Wirt County C. S. Benedict and others drilled No. 4 on the James L. Adams farm in Clay district along Big Island Creek. It found the Mitchell sand dry and was abandoned.

Drilling in West Virginia

Several new locations and rigs marked the renewed activity in West Virginia. In Calhoun County Creed Barker and others have made a location for a test on the M. C. Haught farm, in Sherman district. In this district H. B. Scott is down 1,750 feet in a test on the Beall and Wilson farm. Poling & Mollahan are fishing at 1,835 feet in a test on the F. M. White farm. Creed Barker and others have completed a rig for a test on the I. B. Fowler farm. In Sheridan district Cain & Rothwell spudded in and shut down for water in a test on the Lee Roy Jones farm. Ira Haught and others are reaming at 1,700 feet in No. 3 on the Alva Elder farm. In Center district Starcher & Richards are close to the Injun sand in a test on the Chenowith and Edman lease, the depth being 1,900 feet. Everett Starcher and others are down 1,700 feet in a test on the C. C. Starcher and others are down 1,700 feet in a test on the C. C. Starcher farm. In Lee district no wells are drilling, but F. F. McIntosh has made a location for No. 3 on the S. A. Hays farm. Lowther & Shumm are building a rig on the Rufus and Maide Mace farm. Washington district is quiet with but one new rig standing, that of Grant Fowler on the Orval Postlethwait farm.

In Gilmer County a new test is that of Clem Morris and others on the Cora B. Gainer heirs farm in DeKalb district. It is being rigged up at the present time. In Roane County Charles Despard and others are down 1,650 feet in a test on the Charles Starcher farm in Smithfield district. In Curtis district the Big Four Drilling Co. has reached 650 feet in a test on the W. S. Fouty and others' lease.

In Cabell County the West Virginia Gas Corp. has started drilling a test on the H. L. Day farm in McComas district. In this district the Oraann Gas Co. is rigging up for a test on the George H. Midkiff farm. In Union district G. W. Shipes and others have resumed drilling their test on the Callie Massey farm and are down 1,450 feet. In Guyandotte district the following depths are noted: Swanson & Martin, on the J. T. Tubert farm, drilling at 2,465 feet; the Graham Gas Co., on the S. P. Hager farm, 2,440 feet; Petry & Borders, on the Shelby Johnson farm, 1,840 feet; Ross Campbell, on the Julliette Enslow farm, 1,385 feet.

In Boone County the Pure Oil Co. is down 1,072 feet in a test on the A. M. Prichard lease in Sherman district, and on the Federal Coal Co. tract down 790 feet in No. 60. This company has made a location for No. 62 on the same lease.

In Kanawha County Marshall & Price have started drilling No. 9 on the Goshorn and others' lease in Elk district. In Cabin Creek district the Pure Oil Co. is down 2,605 feet in a test on the Cheylan Coal Land Co. and Godfrey L. Cabot has reached 1,375 feet in No. 41 on the A. H. Huntington lease. In Clay County Godfrey L. Cabot is down 2,115 feet in a test on the Bell Creek Land Co. tract in Pleasant district.

In Ritchie County a new test starting is that of Clem S. Morris and others who have made a location on the Hiram Williams heirs farm in Murphy district. In another test Lewis & Litten have rigged up for a test on the Conley heirs farm. In this district the King Knob Oil Co. is down 900 feet in a test on the H. C. Allen farm, and Deen & Overton have started drilling a test on the R. A. Overton farm.

In Pleasants County Julius C. Goebel and others are spudding in a test on the J. W. Ruckman farm in Jefferson district. In Tyler County J. N. Jones has a drilling machine on his own property in Meade district. In Harrison County the Hope Natural Gas Co. is down 3,017 feet in a test on the M. V. Peck farm in Clark district. In Wood County Don Swearingen has a rig standing for a test on the John Roberts farm in Walker district.

In Marion County the Victor Oil & Gas Co. is down for casing at 2,176 feet in a test on the Charles H. Freeland farm in Mannington district. In Monongalia County the Chartiers Oil Co. has started drilling their test on the Thomas Williams heirs farm in Clay district.

SOUTHWEST PENNSYLVANIA

Three wells were completed in Southwest Pennsylvania. In Washington County E. H. and J. B. Tague completed another well along their development in North Franklin Township. It was their No. 4 on the Adaline D. McKennan estate and is a 5-bbl. producer from the Dunkard sand at 882 feet.

In Greene County Earhart & Co. completed a test on the Clara D. Baldwin farm in Richhill Township. It was drilled in the second gas sand at 1,380 feet and will make a small gas well. In Springhill Township, Snyder & Null drilled deeper the old No. 1 on the Barney Renner farm from the Injun sand down to the Bayard sand, a depth of 3,489 feet. It will make a light gas well. The depth of the Pittsburgh Coal was 1,190 feet.

In Amwell Township, Washington County, the Union Gasoline & Oil Co. is rigging up for a test on the Leroy Van Kirk farm. The test of Jess Moore and others on the John Parker farm is down 1,265 feet and drilling.

(Continued on Page 51)

Drilling Operations in California Show Marked Increase Since Beginning of Present Year

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., July 31.—Drilling operations in California, although below the average for the past decade, have shown an increase since the first of the current year, with indications of further gain. The increase is not in any single field but in several productive areas. The Huntington Beach and Richfield districts of Los Angeles Basin are seeing a revival of development work and this, together with projected drilling in the Mountain View Field of Kern County, practically assures more development during the next several months.

Efforts to pass a bill in the California legislature transferring title of the Huntington Beach tidelands from the state to the municipality have proved unsuccessful. The California senate's revenue and taxation committee refused to report the measure, notwithstanding that the state assembly already had adopted a resolution favoring such a procedure. Failure of the senate committee to report the measure for consideration and a subsequent vote of the senate upholding the committee's action confirms the expectation of politicians that this bill could not be passed. The bill introduced by Assemblyman Edward Craig of Orange County contemplated the leasing of Huntington Beach tidelands for development on a one-sixth royalty basis. The royalty was to be divided one-half to the state of California and one-quarter each to Orange County and the city of Huntington Beach.

Richfield

Drilling operations in the Richfield district showed a further increase during the current week. This increase results from virtually the discovery of a new deep productive horizon. The several substantial completions in this area during the year to date have been finished in the Breen zone. This horizon, located below the Chapman zone and above the Kraemer zone, was apparently passed up in the competitive drilling program following discovery of the field several years ago.

The productivity and ultimate importance of the Breen zone in the Richfield district is more or less conjectural, but those in close touch with the situation do not expect the development of this intermediate zone to cause any substantial increase in field production.

The Union Oil Co., discoverer of the Richfield district, is the latest operator to enter the development program under way in that field. The Union is starting preparations to redrill and deepen No. 3 Ayers & Parsons and No. 5 Thompson & Goodwin to the Breen zone. The Chanslor-Canfield Midway Oil Co. has just completed rigging up rotary equipment preparatory to a resumption of drilling operations in No. 2 Richfield, which will be carried down to the Breen zone. The development work under way in the Richfield district was precipitated by independent operators and this group is doing most of the drilling.

Huntington Beach

Production of the Huntington Beach Field, reflecting intensive development in the Seventeenth Street town lot area, is running ahead of schedule and may exceed the anticipated peak. During the 24-hour period ending at 7 a.m. July 2, the Huntington Beach Field produced 28,943 bbls. of crude oil, of which 14,732 bbls. was brought to the surface in the Seventeenth Street town lot area. On July 27 the field produced approximately 42,000 bbls. of crude oil, of which about 29,500 bbls. represents production of the Seventeenth Street town lot area. The peak of development is still in the future as far as drilling operations in the town lot area are concerned and consequently field production should show an uptrend during the next few weeks.

In the past engineers have been able to estimate the period of peak production fairly accurately, but the situation at Huntington Beach presents perplexing problems that make prediction difficult. Estimates on the production peak range from 40,000 to 60,000 bbls. a day. Difficulties confronting those attempting to estimate peak production are intensified by the fact that the outcome of the town lot development program in the Huntington Beach Field depends almost entirely on the ability of operators to whipstock or otherwise cause wells artificially to deviate from the vertical so that the bottom of the hole will be deflected out toward or under the Huntington Beach tidelands, which is still virgin territory.

Huntington Beach has already exceeded the lowest estimate of peak production of 40,000 bbls. a day and will probably reach the 50,000-bbl. mark before the close of August. Engineers are confronted by variable factors, any one of which might easily upset calculations. These variable factors are the lack of knowledge as to the exact location of the bottom of an artificially deviated hole and the possibility that two or more wells might collide and result in serious damage to the productive formation. Only two producing wells have been killed so far in the Seventeenth Street town lot area by the bit from adjacent drilling projects.

Elwood

The Barnsdall and Rio Grande have started preparations to drill a deep test on the Bell lease in the Elwood Field of Santa Barbara County. This projected deep test is No. 8 Doty, which is located inside the tide line and well within the area of competitive development possibility. The starting of this exploratory well is not expected to result in comparable development by other operators in the Elwood Field as the Barnsdall and Rio Grande do not expect to produce No. 8 Doty following completion in the underlying Sespe. The attitude of other operators does not indicate any objection to the drilling of this well for exploratory purposes, although it is probable that several deep tests will be drilled in the near future. Attempts have been made from time to time to formulate a unit plan of development for the Elwood Field but work along this line has not proved successful.

Developments in the San Miguelito Field of Ventura County were rather unfavorable during the current week as both No. 2 Grubb of the Continental and No. 1 Valenzuela of the Honolulu Consolidated chalked up additional footage without a corresponding improvement in the production possibilities of either well. Both projects are approaching the 7,600-foot level with the outlook not any too promising at present.

In the Ventura Avenue Field the General Petroleum is rotating in No. 15-A Barnard, a projected deep zone completion at 8,500 feet, and present plans contemplate completion of this well at approximately 9,000 feet. The General Petroleum's Barnard well is scheduled for completion in the deep 57 zone, discovered by the Associated Oil Co. approximately two years ago. The Associated, by the way, is only running four strings of tools in the Ventura Avenue Field, while the Shell has one well actually rotating and two additional projects being rigged up.

The Standard Oil Co.'s No. 1 Chase & Bryce, a test which the company is drilling in the Goleta gas field of Santa Barbara County, staged a premature blowout of short duration during the early part of the current week, but was brought under control and drilling operations were resumed. No. 1 Chase & Bryce has threatened several times to get beyond control and cause damage. The General Petroleum, discoverer of the Goleta gas field, also encountered heavy gas pressure during the course of its pioneer work, but neither of the wells drilled by the General Petroleum showed as much promise as No. 1 Chase & Bryce.

Dominguez

The Union Oil Co. had the misfortune to experience an explosion and fire in No. 18 Hellman in the Dominguez Field of Los Angeles Basin in the early part of the past week. This well was swabbed for a production test from 4,870 feet and in some unexplainable manner exploded and caught fire. The well was immediately shut in and although the fire was extinguished with 30 minutes, four of the crew were seriously burned and required hospitalization. The Sunrise Petroleum, which a few weeks ago acquired a lease on property in the southern part of the Dominguez Field, is rotating in its first test at 3,590 feet. This company is developing acreage originally drilled and found productive by the Marland Oil Co., but subsequently quitclaimed because of edgewater encroachment.

In the West Coyote Field of Los Angeles Basin, the Plymouth Oil Co. is building a rig for a new deep test to be drilled on the McNally property, which is located almost due west of the Standard Oil Co.'s Emery lease. The Standard Oil Co. is expected to finish two wells in the deep zone in the West Coyote Field within the next 30 days and will undoubtedly undertake additional developments as the company has been endeavoring to maintain normal development in this

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Crude oil	.....	.....	.....	.....	78,085	.....
Fuel oil	.....	.....	.....	.....	805,661	.....
Diesel and gas oil	.....	.....	.....	.....	1,085,964	147,070
Gasoline	.....	.....	290,131	41,447	5,067,640	4,705,071
Kerosene	.....	.....	.....	.....	502,970	154,372
Foreign exports—						
Crude oil	199,627	28,518	10,112	1,445	3,983,428	4,753,650
Fuel oil	106,676	15,239	129,365	18,552	4,188,235	4,816,169
Diesel and gas oil	25,170	3,167	83,943	11,992	1,957,944	1,401,301
Gasoline	.....	.....	111,720	15,970	3,443,474	5,049,382
Kerosene	.....	.....	21,037	3,005	1,020,864	1,422,117
Naphtha distillates	.....	.....	.....	.....	.....	120,075
Coastwise domestic—						
Crude oil	79,095	11,299	.....	.....	4,535,745	7,964,954
Fuel oil	42,192	6,027	215,383	30,769	5,516,882	6,842,991
Diesel and gas oil	5,652	807	7,947	1,135	762,914	726,957
Gasoline	315,691	45,099	256,822	36,689	6,750,920	8,502,971
Kerosene	6,633	948	.....	.....	115,248	98,549
Naphtha distillates	.....	.....	.....	.....	27,651	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	280,531	231,170
Gasoline	.....	.....	70,106	10,015	571,072	430,185
Kerosene	.....	.....	.....	.....	482,430	.....
Lubricants	.....	.....	7,966	1,138	24,366	15,824
Foreign exports—						
Crude oil	77,150	11,021	.....	.....	1,077,093	707,651
Fuel oil	.....	.....	.....	.....	361,366	582,109
Diesel and gas oil	41,944	5,992	.....	.....	626,662	425,682
Gasoline	165,833	23,690	.....	.....	2,477,387	2,089,131
Kerosene	9,710	1,387	.....	.....	561,729	635,540
Lubricants	2,475	354	.....	.....	35,902	24,934
Coastwise-domestic—						
Fuel oil	174,270	24,896	.....	.....	1,916,524	1,620,370
Diesel and gas oil	.....	.....	.....	.....	166,162	238,094
Gasoline	94,897	13,557	191,665	27,381	2,009,130	1,907,065
Kerosene	.....	.....	.....	.....	73,619	65,756
Lubricants	.....	.....	.....	.....	2,751	.....

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.	T.	R.	Depth	Status—
Palm Ridge Oil Co., No. 1 Palma, Los Angeles Co.	2-	2-15		6,095	suspended
Kupfer, A. M., No. 1 Inglewood, Los Angeles Co.	17-	3-14		5,863	plugging
Pacific Gulf, No. 1 Athens, Los Angeles Co.	19-	3-13		6,094	suspended
Pacific Oil Inv. Co., No. 1 Wilmington, Los Angeles Co.	28-	4-13		3,540	cleaning out
Wilmington Oil Co., No. 2 Wilmington, Los Angeles Co.	28-	4-13		.....	material
Sunrise Pet. Co., No. 1 Dominguez Los Angeles Co.	3-	4-13		2,563	sd. sh. drilling
Peoples Oil & Gas Co., No. 1 Compton, Los Angeles Co.	31-	3-12		rig	rigged up
Oakes & Mead, No. 1 Lyndwood, Los Angeles Co.	31-	2-12		4,940	redrilling
Community Oil Co., No. 1 Montebello, Los Angeles Co.	34-	1-11		5,281	suspended
Universal Consd., No. 1 Montebello, Los Angeles Co.	5-	2-11		6,396	br. sh. drilling
Andrus & Hutcheson, No. 1 El Monte, Los Angeles Co.	11-	1-11		1,792	suspended
Signal Pet., No. 1 Puente, Los Angeles Co.	14-	2-10		4,908	plug 3,790 ft.
Willetts Pet., No. 1 Saugus, Los Angeles Co.	35-	5-16		2,074	suspended
Smith, J. A., No. 1 Saugus, Los Angeles Co.	32-	5-17		3,515	suspended
Alpaha Oil Co., No. 1 Calabasas, Los Angeles Co.	22-	1-18		1,199	suspended
Hudson Pet., No. 1 Newhall, Los Angeles Co.	1-	3-16		1,565	suspended
Ball, W. T., No. 1 Newhall, Los Angeles Co.	34-	3-16		3,582	suspended
Big Four Oil Co., No. 1 Newhall, Los Angeles Co.	32-	4-16		2,230	suspended
Marble, Willard, No. 1 Van Nuys, Los Angeles Co.	8-	2-16		2,000	suspended
Nuoli Co., No. 1 Newport, Orange Co.	29-	6-10		3,901	redrilling
Mineral Exploration, No. 1 Capistrano, Orange Co.	8-	8-	7	4,302	suspended
Saddleback Oil Co., No. 1 El Tora, Orange Co.	3-	6-	7	80	suspended
Placentia Dev. Co., No. 1 Placentia, Orange Co.	31-	3-	9	rig	rigged up
Brown, W. F., No. 1 Atwood, Orange Co.	26-	3-	9	rig	rigged up
Plymouth Oil Co., No. 1 West Coyote, Los Angeles Co.	24-	3-11		mtl.	build. rig
Spindle Top Oil Co., No. 1 Salton Sea, Riverside Co.	25-	7-10		2,590	cleaning out
Keeley, H. J., No. 1 Corona, Riverside Co.	21-	4-	6	625	suspended
Great American Pet., No. 1 Chino, San Bernardino Co.	18-	2-	8	2,550	hd. sd. drilling
Great America Pet., No. 2 Chino, San Bernardino Co.	18-	2-	8	943	sd. sh. drilling
McCarthy, C. F., No. 1 Chino, San Bernardino Co.	14-	2-	6	402	suspended
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-17-15			680	suspended

field in order to prevent any further reduction in drilling operations.

In the Montebello Field of Los Angeles Basin, the Universal Consolidated, a subsidiary of the Richfield Oil Co., has resumed drilling operations in No. 1 Cruz at 6,379 feet, following a suspension of several weeks duration. This test, located in the extreme eastern part of the Montebello Field, was started for specific purpose of determining the production possibilities of the Miocene rocks. Nothing of a conclusive nature had been found by the Universal Consolidated up to the time drilling operations were suspended and hence the well is still a good prospect. In the Playa Del Rey Field the Union Oil Co. is rigging up rotary equipment in No. 4 Vidor, a new well scheduled to be spudded in some time within the next 10 days.

The Barnsdall has resumed drilling operations in No. 1 Trust, an outpost located in the extreme western part of the Rosecrans Field, and the bit is at present rotating at 6,677 feet. The significance which attaches to the resumption of drilling on this well lies in the fact that it may throw light on the production possibilities of the Rosecrans Field. A few months ago the Barnsdall finished No. 2 Trust and apparently opened up a new deep zone. The initial production was somewhat disappointing, however, and tended to cool outside interest in the field. No. 1 Trust is more favorably located than No. 2 Trust.

Mountain View

Drilling operations in the Mountain View Field of Kern County have failed to keep step with the interest being manifested in this field. Leasing activities were rather prominent immediately subsequent to completion of Dana Hogan's No. 1 Wharton in May, 1933, but for some reason or other operators have been dilatory in the starting of new wells. This delay can be attributed to the fact that leases in the Mountain View Field are not as stringent nor as exacting as conveyances in some other fields and also because the trend and scope of the Mountain View Field is still somewhat dubious. The surface evidence of structure is practically negligible in the Mountain View Field and consequently operators are working more or less in the dark. The situation is further complicated by the existence but undetermined location of the Bear Mountain fault zone which extends southeastward through Union Avenue and Mountain View from the Fruitvale Field to Comanche Point in the extreme southern end of the San Joaquin Valley. Only five wells are actually making hole in the Mountain View Field of Kern County at present although additional locations have been staked for 15 new wells by various operators.

Lost Hills-Belridge

The Associated Oil Co. is rotating in No. 1 Williamson, a deep test which the company is drilling in the Lost Hills Field of Kern County in conjunction with the Richfield Oil Co., at 4,870 feet and while several promising showings have been logged, the formation in each case has been found to be wet on a formation test. This well topped the Temblor around 4,500 feet, but drilling operations were not suspended to make a production test as the zone at that point was found to be definitely wet.

In the North Belridge Field of Kern County, the Continental Oil Co. is rotating in the pay at 5,656 feet in No. 4 Result and should consequently make an early production test. The Casa Mira Oil Co. has not yet passed out of the brown shale in its No. 1-A in Section 29-28-20 down to 3,600-foot level, but this factor is not unfavorable by any means due to the relative shallowness of the hole.

In the Gould Hills district, the Hub Petroleum has suspended drilling operations in No. 1 at 6,940 feet but negotiations are under way to induce a reputable operator to drill ahead for a conclusive test. In the Lerdo district of Kern County the Keno Petroleum Co. is erecting a new rig over No. 1 Shepherd, a wildcat originally drilled by the Shell Oil Co. and abandoned several years ago as a duster at 4,531 feet.

Kettleman Hills

Within another few weeks operators in the Middle Dome of Kettleman Hills will probably complete final plans for the future development of the Kettleman Hills Middle Dome structure. Tentative plans have been completed and signatures are expected to be placed on the final plans some time within the next two or three weeks. In the Kettleman North Dome Field the North Kettleman Oil & Gas Co., under the personal supervision of Ed McAdams, is expected to resume drilling operations in No. 1 Lillis-Welsh, following a suspension of several weeks' duration resulting from a complex fishing job. This well is the most important project in the Kettleman North Dome Field since the discovery of commercial production a few years ago, as it should reveal the presence or absence of commercial production in the Eocene rocks underlying the present productive Temblor. Mechanical trouble developed in No. 1 Lillis-Welsh a short time before the time at which a production test was expected to be concluded. No. 1 Lillis-Welsh showed enough to justify the expectation of developing Eocene production higher up on the structure and further work on this well will consequently be watched with considerable interest.

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.	T.	R.	Depth	Status—
Standard Oil Co., No. 1 Goleta, Santa Barbara Co.	20-	4-	28	2,850	br. sh. drilling
Monterey Expl., No. 1 Point Concepcion, Santa Barbara.	33-	5-	33	rig	rigging up
Duell, O. S., No. 1 Naples, Santa Barbara Co.	7-	4-	29	5,132	suspended
Bolsa Chica, No. 1 Coal Oil Point, Santa Barbara Co.		tideland		4,089	suspended
Meganos Oil Co., No. 1 Purisima, Santa Barbara Co.	28-	8-	34	rig	rigged up
Cuyama Oil Co., No. 1 Cuyama, Santa Barbara Co.	12-	10-	27	2,387	suspended
Woodrow Pet., No. 1 Rincon, Ventura Co.	4-	3-	24	7,292	suspended
Bardeen Pet., No. 1 Fillmore, Ventura Co.	13-	4-	19	2,801	reaming
Hancock Oil Co., No. 1 Fillmore, Ventura Co.	13-	4-	19	1,693	O.S. drilling
Oil Ridge Oil Co., No. 1 Fillmore, Ventura Co.	1-	4-	19	....	build. road
Los Cerritos Pet., No. 1 South Mountain, Ventura Co.	17-	3-	20	....	build. road
Kneiper & Atha, No. 1 Bardsdale, Ventura Co.	7-	3-	19	316	suspended
Williamson & Donaher, No. 1 Simi, Ventura Co.	36-	3-	18	107	hd. sd. drilling
Honolulu Consolidated, No. 1 Miguelito, Ventura Co.	23-	3-	24	7,590	sd. sh. drilling
Continental, No. 2 Miguelito, Ventura Co.	23-	3-	24	7,560	O.S. drilling
C. C. M. O., No. 3-A Miguelito, Ventura Co.	23-	3-	24	4,166	suspended
Midlands Pet., No. 1 Ojai, Ventura Co.	9-	3-	23	7,841	redrilling
Wilshire Oil Co., No. 1 Sulphur Mountain, Ventura Co.	20-	4-	21	2,000	br. sh. drilling
Mosher, J. W., No. 1 Santa Paula, Ventura Co.	22-	4-	21	1,350	br. sh. drilling
Petro Producing Co., No. 1 Timber Canyon, Ventura Co.	18-	4-	20	4,747	plug 1,975
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22-	3-	21	4,408	br. sh. drilling
International Oil Developers, No. 1 Conejo, Ventura Co.	33-	2-	20	2,770	cleaning out
Hub Pet. Co., No. 1 Gould Hills, Kern Co.	22-	29-	21	6,840	suspended
Purman, T. H., No. 2 Gould Hills, Kern Co.	27-	29-	21	335	suspended
General Pet., No. 1 McKittrick, Kern Co.	10-	30-	21	1,753	br. sh. drilling
Casa Mira Oil Co., No. 1 Belridge, Kern Co.	29-	28-	20	3,550	br. sh. drilling
General Pet., No. 1 Belridge, Kern Co.	30-	28-	21	8,260	suspended
Cumberland Oil Co., No. 2 Devil's Den, Kern Co.	17-	26-	18	3,270	suspended
Holloway, A. S., No. 1 Devil's Den, Kern Co.	11-	25-	18	1,848	suspended
Lincoln Pet., No. 1 Devil's Den, Kern Co.	10-	25-	18	1,810	hd. sh. drilling
Hanna, Tom, No. 1 Devil's Den, Kern Co.	25-	25-	18	3,516	suspended
Pyramid Hills Oil Co., No. 1 Devil's Den, Kern Co.	24-	25-	18	3,974	suspended
Fowler, F., No. 1 Blackwell Corner, Kern Co.	15-	26-	19	3,170	suspended
Associated, No. 1 Lost Hills, Kern Co.	2-	26-	20	4,871	br. sh. drilling
Howells Bros., No. 1 Round Mountain, Kern Co.	32-	28-	29	707	hd. sh. drilling
Keno Pet. Co., No. 1 Lerdo, Kern Co.	14-	29-	27	4,531	old abd. hole
Seale, Fred, No. 1 Edson, Kern Co.	5-	30-	29	....	location
Caravel Pet. Co., No. 1 Edison, Kern Co.	19-	30-	30	1,801	redrilling
White, L. L., No. 1 Union Avenue, Kern Co.	6-	30-	28	....	location
Shell Oil Co., No. 3 Mountain View, Kern Co.	29-	30-	29	3,093	hd. sd. drilling
Hogan, Dana, No. 2 Mountain View, Kern Co.	29-	30-	29	....	location
Bankline Oil Co., No. 1 Mountain View, Kern Co.	4-	31-	29	3,190	br. sh. drilling
Barnsdall Oil Co., No. 1 Mountain View, Kern Co.	31-	29-	29	1,697	sd. sh. drilling
Petrol Prod. Co., No. 1 Mountain View, Kern Co.	29-	30-	29	....	location
Long Beach Pet., No. 1 Mountain View, Kern Co.	29-	30-	29	1,009	sd. sh. drilling
Jergins Trust, No. 1 Mountain View, Kern Co.	29-	30-	29	....	location
Mohawk Pet., No. 1 Mountain View, Kern Co.	30-	30-	29	5,958	suspended
Mohawk Pet., No. 2 Mountain View, Kern Co.	30-	30-	29	rig	rigging up
Comanche Oil Co., No. 1 Comanche, Kern Co.	15-	32-	29	mtl.	building rig
Badger Oil Co., No. 1 Wheeler Ridge, Kern Co.	31-	11-	19	3,721	br. sh. drilling
Gatton & Luethe, No. 1 Madera, Madera Co.	22-	10-	17	2,390	suspended
Russ Oil Synd., No. 1 Kingsbury, Fresno Co.	20-	12-	11	921	sd. sh. drilling
Bergman, Harry, No. 1 Kingsman, Fresno Co.	12-	12-	11	4,148	recemented
Graham & Loftus, No. 1 Raisin City, Fresno Co.	20-	15-	18	5,900	suspended
Emerich Oil Co., No. 1 Mendota, Fresno Co.	35-	13-	13	3,840	sd. sh. drilling
Western Gulf, No. 1 S. P., Fresno, Co.	3-	17-	15	1,976	sd. sh. drilling
Hogan, Dana, No. 1 Joaquin Ridge, Fresno Co.	28-	20-	16	6,003	reaming
Kent & McDonald, No. 1 Carrizo Plains, S. Luis Obispo Co.	3-	32-	22	3,830	suspended
Paso Robles Oil Co., No. 1 Edna, San Luis Obispo Co.	27-	27-	11	4,191±	suspended
Guess, E. B., No. 1 Corcoran, Kings Co.	7-	21-	21	6,197	suspended
Brown, A. M., No. 1 Cloud, Kings Co.	10-	23-	19	1,205	recemented
Brown, A. M., No. 2 Cloud, Kings Co.	10-	23-	19	501	sd. sh. drilling
Dudley Dome Oil Co., No. 1 Dudley Ridge, Kings Co.	9-	23-	20	3,012	suspended
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-	23-	17	6,873	suspended
Magee & Stone, No. 2 Alpaugh, Kings Co.	33-	24-	22	3,149	plugging
Dil-Harp Oil Co., No. 1 Delano, Tulare Co.	25-	24-	26	1,210	suspended
Cardinal Oil Co., No. 1 Los Banos, Merced Co.	26-	10-	9	rig	rigged up
Merced Oil & Gas, No. 1 Chowchilla, Merced Co.	2-	9-	16	rig	suspended
Na-Pa Oil Co., No. 1 Griffith, Napa Co.	7-	8-	3	3,742	br. sh. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	5-	2-	10	4,815	hd. sh. drilling
Pacific Northern Oil Co., No. 1 Guinda, Yolo County	23-	12-	3	4,330	gr. sd. drilling
Buttes Oilfields Co., No. 1 Marysville, Sutter Co.	35-	16-	1	2,731	gas, shut in
Buttes Oilfields Co., No. 2 Marysville, Sutter Co.	34-	16-	1	3,325	fishing
Tehama Pet. Co., well No. 1, Glenn Co.	4-	22-	5	4,814	will test
Orland Synd., No. 1 Orland, Tehama Co.	31-	23-	3	3,748	suspended
Marker Drlg. Co., No. 1 Orland, Tehama Co.	21-	25-	5	3,030	suspended

Eastern Fields

(Continued from Page 49)

In Dunkard Township, Greene County, the Convex Glass Co. has started drilling a test on the Sam Morse farm. In North Franklin Township, Washington County, J. H. Wilson is starting to drill a second test on the Clark farm, which is on the Dunkard sand streak.

In Fayette County the Carnegie Natural Gas Co. is down 1,045 feet in a test on the H. H. Wells farm in Jefferson Township.

SOUTHEAST OHIO

Three wells were completed in Southeast Ohio, all producers. The best for the week was the second test of the McCloy Brothers on the Fern Smith farm in Section 14, Fallsbury Township, Licking County. It was completed in the Clinton sand at 2,923 feet and produced 31 bbls. the first day after being shot.

In Jefferson County C. S. Kelly and others completed No. 3 on the Ella E. Baxter farm in Saline Township. It is a Berea sand well at a depth of 1,420 feet and made 2 bbls. the first day natural.

In Medina County the Oko Oil & Gas Co. completed No. 10 on the Celestia Richards farm in Section 1, Chatham Township. It was completed in the Berea grit at 491 feet and produced 10 bbls. the first day after being shot.

In Tuscarawas County, the Hopewell Fuel Gas Co. is nearing the sand in a test on the G. W. Hershey farm, Section 22, Washington Township.

Canada

(Continued from Page 47)

No. 1 and a little north of Union Drilling Co.'s No. 1.

Saskatchewan Gas Test

Highwood-Sarcee Oils, Ltd., is starting also an important wildcat test for gas in southern Saskatchewan. The company has secured a controlling interest in approximately 14,000 acres in the Dirt Hills area, about 50 miles south and east of Moose Jaw and the same distance south and west of Regina. Development will be carried on in conjunction with the Sheldon-Burden Co. of Canada, which has been given the contract for No. 1 well. Work has already been commenced and the contractors expect to spud in within a few weeks.

Graystone Test Resumed

Announcement is made that on the Moose Mountain structure northwest of Turner Valley, Graystone Consolidated Petroleum's No. 2 Signal Hill, LSD 9, Section 34-23-5w5, has resumed work after a shutdown of more than a year. Completion of the test is being financed by Calgary interests, following geological investigation. At last reports the test bottomed at 4,224 feet.

Plympton Township Test

An important wildcat test has been located for the British Petroleum Co. of Hamilton on the Archie McKinlay farm near Aberarder, in Plympton Township, Lambton County, Ontario. Some shallow oil production was developed many years ago further south in Plympton Township, but no deep drilling has ever been done in this area. British Petroleum's No. 1 McKinlay will probably be carried to the Trenton horizon.

Crude Prices Increased

Calgary refineries announced an increase in crude prices, effective July 20. The last previous change in field prices took place on January 24. Comparative prices are as follows:

	July 20	January 24
Clear naphtha	$2.99	$2.82
Discolored naphtha	2.75	2.58
Crude oil, 50 deg. up	2.54	2.42
Crude oil, 45 to 49.9 deg.	1.99	1.90
Crude oil, 40 to 44.9 deg.	1.46	1.41

On the basis of recent deliveries, the increases represent around $12,000 per month additional revenue to Turner Valley producers. The increases coincide with a general increase in gasoline prices throughout Canada.

Drilling in Ontario

In the Dover Field, Kent County, Ontario, Raleigh Development Syndicate's No. 1, Stephens farm, Lot 2, front concession, finished at 3,300 feet. Two pays of gas were encountered in the Trenton limestone making around 135,000 feet a day. A fair show of oil was encountered below the gas. The oil sand was shot with 60 quarts of nitroglycerin, after which a shot of 2,082 pounds of solidified nitroglycerin was put in the gas sand. The hole bridged above the oil, which was shut off entirely. The gas flow was considerably increased, and is reported over 500,000 feet a day. In cleaning out the hole the stem was caught by caving, and at last reports the drillers were still cleaning out and fishing. Early reports after the first shot indicated that the oil production might reach 100 bbls. a day, but this was only a rough estimate. The oil sand was reported to be about 15 feet thick, which is unusual in this area.

A.I.M.E. TRANSACTIONS

The American Institute of Mining and Metallurgical Engineers, 29 West Thirty-ninth Street, New York City has just published the 1933 edition of Petroleum Development and Technology. This volume contains papers and pertinent discussion presented before Petroleum Division sessions held in Los Angeles in July, Ponca City in October, and New York in February of 1932 and 1933, respectively.

It contains five chapters. Chapter 1. on stabilization; chapter 2, economics; chapter 3, production engineering and engineering research; chapter 4, symposium on production; and chapter 5, summary of development in refinery engineering during 1932. The book contains 426 pages, is fully illustrated and sells for $5 per copy. Anyone desiring a copy can secure same direct from the New York City office of the Institute.

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Gulf Coast Fields and Wildcats

(Continued from Page 44)

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 1-B Broussard & Orme, 126 ft. E of center of W line of M. Dunman Sur. ..... Drlg. shale and lime 4,250 ft.

Yount Lee Oil Co.'s No. 36 Cade, N. Fitzsimmons Sur., 600 ft. from S line, 240 ft. E of No. 34 ..... Drlg. shale and lime 4,555 ft.

Yount Lee Oil Co.'s No. 1-B Cade, N. Fitzsimmons Sur., 488 ft. from S line, 320 ft. from E line ..... Drlg. gumbo 2,052 ft.

Yount Lee Oil Co.'s No. 17 Smith, M. Dunman Sur., 300 ft. SW of No. 14 ..... Drlg. hard shale 5,435 ft.

Yount Lee Oil Co.'s No. 18 Smith, M. Dunman Sur., 175 ft. S of No. 9 ..... Drlg. shale and lime 4,450 ft.

BATSON—HARDIN COUNTY

Danciger O. & R. Co.'s No. 1 Hooks, 95 ft. S, 150 ft. W of NE cor. of Strip 13, Donoghue Sur. ..... Tested S.W. 4,725 ft; plugged bottom of hole; standing.

TOMBALL—HARRIS COUNTY

Continental Oil Co.'s No. 1 Agnes Theis, Joseph House Sur., 3,474 ft. from S line, 165 ft. from W line of 50-ac. tract ..... Drlg. shale 4,375 ft.

Humble O. & R. Co. and Magnolia Pet. Co.'s No. 1 Amiel Doege, C. Goodrich Sur., 1,389 ft. N, 1,013 ft. W of SE cor. 90.63 acres ..... Coring sand 5,520 ft.

Humble O. & R. Co. and Magnolia Pet. Co.'s No. 1 Herbert Reid, Chauncy Goodrich Sur. ..... Cored sand showing oil 5,550-52 ft.

Humble O. & R. Co. and Magnolia Pet. Co.'s No. 1 Emil Schultz, 1,107 ft. N, 900 ft. E of SW cor. of 133.71 acres ..... Drlg. shale 4,222 ft.

Magnolia Pet. Co. and Humble O. & R. Co.'s No. 1 Wm. Rudel (63 acres), Joseph House Sur., 350 ft. out of SW cor. of lease ..... S.W. sand 5,610 ft; P.B.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 100-A Jordit, Jordit Sur. ..... Sandy shale showing oil 879-910 ft.; set screen.

Seven Wells Corp.'s No. 1 Tesla, T. C. Gaines Sur., NW cor. of 883-ac. tract ..... S.D. 6,250 ft.

SOUR LAKE—HARDIN COUNTY

Arlis Pet. Co.'s No. 1 Sour Lake Bank, NW cor. Sec. 69, Blk. 11, H.&T.B. Sur. ..... No report.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Co.'s No. 11 Moores Bluff, Duncan Sur., 2,100 ft. from N line, 1,069 ft. from E line of 632-ac. tract ..... Drlg. shale 1,245 ft.

HULL—LIBERTY COUNTY

W. B. Flynn's No. 1 Cantor, Jesse DeVore Sur., 150 ft. E and 100 ft. N of SE cor. of tract ..... Abd. 500 ft.

Miramar Oil Co.'s No. 2 Phoenix, Jesse DeVore Sur., 25 ft. due N of No. 1 ..... Drlg. shale 1,250 ft.

The Texas Co.'s No. 8 Hannah (W.O.), Jesse DeVore Sur. ..... T.D. 5,133 ft; preparing to side-track stuck drill pipe.

CONROE—MONTGOMERY COUNTY

Alpha Pet. Co.'s No. 8 Keystone Mills, Lemuel Smith Sur., 366 ft. S line, 466 ft. W line ..... Drlg. gumbo 350 ft.

Alpha Pet. Co.'s No. 1-B Krohn, S. H. Bryan Sur., center of 20-ac. tract ..... Drlg. plug 5,095 ft.

Bishop Oil Corp.'s No. 2 Smith & Ratcliff, W. S. Rhodes Sur., 292 ft. from W line, 316 ft. from S line of lease ..... Drlg. shale 4,225 ft.

Gulf Coast Drlg. & Prod. Co.'s No. 11-A Keystone Mills, A. James Sur., 467 ft. from N line, 933 ft. S of No. 10 ..... Drlg. 885 ft.

Gulf Coast Drlg. & Prod. Co.'s No. 12-A Keystone Mills, A. James Sur., 467 ft. from W line, 933 ft. S of No. 11 ..... Rig.

Hooper-Rutherford Oil Co.'s No. 2 Hooper, L.&G.N. Sur. No. 649 ..... Drlg. sand and boulders 1,865 ft.

Houston Oil Co. and Tide Water Oil Co.'s No. 7 Cartwright, John Davis Sur. ..... Comp. 75 bbls. per hr.; 5,177 ft.

Houston Oil Co.-Tide Water Oil Co.'s No. 3 Hooper, L.&G.N. Sur. No. 11, 667 ft. S of No. 1 in center E and W ..... Cmtd. 16-in. csg. 315 ft.

Houston Oil Co.-Tide Water Oil Co.'s No. 4 Moore, Lemuel Smith Sur. ..... Drlg. sand and boulders 2,097 ft.

Humble O. & R. Co.'s No. 5 Dobbins, Ransom House Sur., 1,084 ft. E of No. 7 ..... Drlg. shale 3,503 ft.

Humble O. & R. Co.'s No. 1 Easterly, C. A. West Sur., 330 ft. from E line, 15 ft. from N line of Blk. 15.... T.D. 5,183 ft; cmtd. csg.

Humble O. & R. Co.'s No. 6 Emory, W.C.C.R.R. Sur. No. 13, 962 ft. from N line, 443 ft. from W line ... Drlg. shale and sand 3,530 ft.

Humble O. & R. Co.'s No. 5-B Hirsch, D. McIntyre Sur., 330 ft. from E line, 350 ft. from S line ..... Coring sand 5,135 ft.

Humble O. & R. Co.'s No. 37 Madeley, Ransom House Sur., 410 ft. from NW line, 281 ft. from NE line.... Comp. 75 bbls. per hour; ½-in. choke, 5,115 ft.

Humble O. & R. Co.'s No. 29 Moore, Lemuel Smith Sur., 1,559 ft. NE of No. 32 ..... Rig.

Humble O. & R. Co.'s No. 36 Moore, Lemuel Smith Sur... Comp. 90 bbls. per hour; ½-in. choke, 5,126 ft.

Humble O. & R. Co.'s No. 40 Moore, Lemuel Smith Sur., 1,200 ft. SW, 300 ft. SE of most easterly NE cor. of lease ..... Drlg. shale 3,087 ft.

Humble O. & R. Co.'s No. 3 E. Moorehead, L. A. Lang Sur., 500 ft. S line, 410 ft. E line ..... Drlg. rock 1,051 ft.

Humble O. & R. Co.'s No. 26 South Tex. Dev. Co., Theo. Slade Sur., 1,010 ft. NE of No. 25 ..... T.D. 5,133 ft; cmtd. csg.

Humble O. & R. Co.'s No. 1 Rogers, C. A. West Sur., 410 ft. from N line, 300 ft. from E line of lease .... T.D. 5,114 ft; cmtd. csg.

Humble O. & R. Co.'s No. 1 Woodson, C. A. West Sur., 9 ft. from N and W lines of Lot 47 ..... Cmtd. csg. 5,130 ft.

Mo-Tex Oil Corp.'s No. 1 Krohn, S. Bryan Sur., 330 ft. from S and W lines ..... Drlg. lime 3,963 ft.

Navarro Oil Co.'s No. 2 Perry hrs., T. M. Wiggins Sur., 282 ft. W line, 770 ft. S line ..... Drlg. shale 4,225 ft.

Showers & Moncrief's No. 3-A Dunn, Wilson Strickland Sur., 666 ft. N line, 410 ft. W line of lease .... Drlg. shale 3,840 ft.

R. D. Simonton, receiver's No. 1 Hooper-Coffield, J. W. Watson Sur., center of N 20 acres of H. H. Coffield 40-ac. lease ..... Drlg. shale 3,920 ft.

Sun Oil Co.'s No. 2 Clark, S. Y. Sutton Sur., 467 ft. from W line, 409 ft. from S line ..... Drlg. shale 1,225 ft.

Sun Oil Co.'s No. 10 Foster, John Bricker Sur., 933 ft. SE of No. 5 ..... Comp. 75 bbls. per hour; ½-in. choke, 5,124 ft.

Texas Co.'s No. 14-A Rhodes, W. S. Rhodes Sur., 150 ft. due E No. 14 ..... Drlg. shale 2,714 ft.

Tide Water Oil Co.'s No. 12 Dean, W. C. C. Lynch Sur., 330 ft. out of NW cor. ..... Drlg. shale and shells 4,275 ft.

LIVINGSTON—POLK COUNTY

Polk County Oil Corp.'s No. 2 Allen & Hilbrager (Craig), A. Viesca Sur., 330 ft. N, 330 ft. W of NE cor. of Shell's Munson 41.35-ac. tract ..... Derrick.

Dick Schwab's No. 2 Holmes-Davis, A. Viesca Sur., 157 ft. out of SW cor. 80-ac. tract ..... T.D. 4,394 ft; P.B. to 4,346 ft.; set 157 ft. of 5-in. screen; flowing 39 bbls. per hr.; 9/16-in. choke; tubing pressure 1,100 lbs.; csg. pressure 1,200 lbs.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 36 Moore, Mark Smith Sur., 4,792 ft. S along E line from NE cor. and 325 ft. W at right angles ..... Drlg. sand and shale 3,206 ft.

PANNETT—JEFFERSON COUNTY

Gulf Prod. Co.'s No. 7 Burrell, W. H. Smith Sur., 150 ft. W of No. 6 ..... Derrick.

Gulf Prod. Co.'s No. 2-A Junker, W. A. Smith Sur., 100 ft. from N line, 320 ft. from E line of lease ..... Drlg. rock 2,033 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 2 Crowe & Jacobs, 1,700 ft. E, 1,050 ft. N of SW cor. of H.&T.C. Sur. No. 21 .....Rig.

HOCKLEY—HARRIS COUNTY

John Deering's No. 4 Warren, T. A. Scully Sur., 250 ft. SW of Texas Co.'s No. 2 Warren .....Spudded.

PORT NECHES—ORANGE COUNTY

The Texas Co.'s No. 1 Orange Nat. Bank, 150 ft. out of NW cor of lease, Jacob Beaumont Sur. ..... T.D. 4,799 ft; cmtd. one string 14 ft. of 9-in. screen and csg.

GRETA—REFUGIO COUNTY

Alamo Oil Co.'s No. 2 O'Brien, E. H. Winfield Sur., 536 ft. S of N line in center E and W of 50-ac. tract .....Sand showing oil 4,381 ft; cmtd. 7-in. csg. 4,357 ft.

Atkins & O'Neil's No. 1 O'Brien, 940 ft. N of S line of J. T. McGrew Sur., 750 ft. W of R.R. .....Drlg. sandy shale 5,533 ft.

Atlantic Oil Prod. Co.'s No. 1 O'Brien, E. H. Winfield Sur., Blk. 5, 466 ft. from S line in center of block E and W .....Derrick.

Blanco Oil Co.'s No. 1-B J. M. O'Brien, E. H. Winfield Sur., 330 ft. out of NE cor. of 50.36-ac. tract .....Drlg. shale and lime 2,405 ft.

Blanco Oil Co.'s No. 2-B J. M. O'Brien, E. H. Winfield Sur., 466 ft. out of SE cor. 50 acres .....Rig.

Blanco Oil Co.'s No. 1-A J. J. O'Brien, N. C. Crunk Sur., 150 ft. from N and W lines of 107-ac. lease ..Drlg. sand rock 3,657 ft.

Blanco Oil Co.'s No. 2-A J. J. O'Brien, N. C. Crunk Sur., 600 ft. SW of No. 1-A .....Drlg. sand and boulders 330 ft.

Circle W Oil Co.'s No. 1 O'Brien, E. H. Winfield Sur., 463 ft. from S line of survey, 466 ft. from E line of 112-ac. tract .....Spudded.

Dash Prod. Co.'s No. 1 J. M. O'Brien, N. S. Crunk Sur., 150 ft. out of most easterly cor. of 50-ac. tract..Cmtd. 7-in. csg. 4,338 ft.

Greta Oil Corp.'s No. 3 O'Brien, E. H. Winfield Sur., 150 ft. out of SW cor. of tract .....Drlg. shale 530 ft.

Heyser & Heard's No. 1 O'Brien, E. H. Winfield Sur., 330 ft. out of SW cor. of 50-ac. tract .....Drlg. sand 2,355 ft.

Edwin M. Jones' No. 1 O'Brien, E. H. Winfield Sur., Blk. 4, 466 ft. from S line in center E and W.....Cmtd. csg. 1,276 ft.

Nesral Oil Co.'s No. 1-A Wilson Heard, M. J. Ximines Sur., 330 ft. out of NE cor. lease .....T.D. 296 ft; standing.

Nesral Oil Co.'s No. 1 Ira Heard, M. J. Ximines Sur., 330 ft. out of NW cor. of 35-ac. tract .....Cmtd. surface csg. 258 ft.

Smith & Flobott's No. 1 O'Brien, E. H. Winfield Sur., 150 ft. out of SW cor. .....Cmtd. csg. 1,300 ft.

Southwest Pet. Corp.'s No. 1-B O'Brien, N. S. Crunk Sur. .....Drlg. sandy shale 2,115 ft.

Vidauri Oil Co.'s No. 1 Welder, 330 ft. S of N line of James T. McGrew Sur., and 700 ft. W of R.R. ... No report.

REFUGIO—REFUGIO COUNTY

United Prod. Corp.'s No. 1-A M. F. Lambert, 666 ft. from N line, 823 ft. from W line of Hews & Brown Sur. .....No report.

SOUTH LOUISIANA FIELDS

ACADIA PARISH

Massert et al's No. 1 Marsh, 4,960 ft. S, 470 ft. E of NW cor. Sec. 44-9s-1e .....No report.

ASSUMPTION PARISH

Barnsdall Oil Co.'s No. 1 Williams, 330 ft. out of NE cor. Sec. 33-14s-14e .....T.D. 5,608 ft; cmtd. 8¼-in. csg.

CALCASIEU PARISH

Quintana Oil Co.'s No. 1 Nelson, 1,515 ft. N, 85 ft. W of SW cor. Sec. 23-10s-9w .....Drlg. shale 6,015 ft.

Union Sulphur Co.'s No. 1 Stout, 1,237 ft. N, 1,167 ft. W of SE cor. Sec. 36-8s-8w .....Drlg. shale 6,515 ft.

CAMERON MEADOWS—CAMERON PARISH

Burton-Sutton Oil Co.'s No. 1 School Land, 500 ft. W and 20 ft. N of SE cor. Sec. 16-14s-13w .....No report.

DARROW—ASCENSION PARISH

Rio Bravo Oil Co.'s No. 1 Community, 200 ft. N line, 1,500 ft. E at right angles from SW cor. Sec. 15-10s-2e .....Coring sandy shale 4,277 ft.

GUETDAN—VERMILLION PARISH

Pure Oil Co.'s No. 4 Alliance Trust Co., 578 ft. from N line and 1,921 ft. from W line of Sec. 34-11s-1w..Cmtd. one string 105 ft. of 7-in. screen and 7-in. csg. to top; T.D. 3,565 ft.

Pure Oil Co.'s No. 5 Alliance Trust Co., 525 ft. from N line, 580 ft. from W line of Sec. 34-11s-1w .....Twisted off 3,981 ft; plugged to 3,850 ft.

Pure Oil Co.'s No. 4 Mulvey, 1,721 ft. from N line, 2,515 ft. from W line of Sec. 34-11s-1w .....Cmtd. 13⅜-in. csg. 1,093 ft.

LOCKPORT—CALCASIEU PARISH

Magnolia Pet. Co.'s No. 8 State-Bayou D'Inde, 865 ft. E, 570 ft. N of SW cor. NE Sec. 8-10s-9w.....Pulling screen to deepen 6,452 ft.

Union Sulphur Co.'s No. 5 Martha Moss, Sec. 8-10s-9w...Drlg. shale 4,850 ft.

BLACK BAYOU—CAMERON PARISH

Shell Pet. Corp.'s No. 15 Watkins, 1,990 ft. from N line and 680 ft. from E line of Sec. 18-12s-12w .....Drlg. sticky shale 4,635 ft.

HACKBERRY—CAMERON PARISH

Gulf Ref. Co.'s No. 12 Irwin, 865 ft. N, 513 ft. E of SW cor. Sec. 44-12s-8w .....No report.

Wilfred Lahey's No. 1 Aroux, center 2-ac. tract, Sec. 36-12s-10w .....S.D. 2,610 ft.

Pop Oil Co.'s No. 1 Yount Lee, 3,996 ft. W and 100 ft. N of SE cor. Sec. 19-12s-10w .....No report.

Union Sulphur Co.'s No. 7 Gulf Land-Humble lease, 1,010 ft. N, 661 ft. E of SW cor. Sec. 12-12s-10w... Drlg. sand and shale 2,020 ft.

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Magnolia Pet. Co.'s No. 1 Bowman, 330 ft. out of NE cor. S½ NW Sec. 12-9s-7w .....No report.

Magnolia Pet. Co.'s No. 4 Waite, Sec. 12-9s-7w, 330 ft. from E line, 660 ft. S of No. 3 .....Drlg. shale 3,635 ft.

Magnolia Pet. Co.'s No. 2 Willett, 990 ft. N, 330 ft. E of SW cor. NW Sec. 7-9s-6w .....Drlg. shale 1,820 ft.

Shell Pet. Corp.'s No. 4 Heyd, 2,122 ft. W, 1,310 ft. S of NE cor. Sec. 13-9s-7w .....Blowing wild; T.D. 4,929 ft.

Shell Pet. Corp.'s No. 2 Stafford, 330 ft. from W line and 365 ft. from S line of NW Sec. 18-9s-6w .....Coring brittle shale 5,700 ft.

Shell Pet. Corp.'s No. 1 Tuten, 265 ft. S, 330 ft. W of NE cor. SW Sec. 13-9s-7w .....Cmtd. surface csg. 1,337 ft.

JEFFERSON DAVIS PARISH

Humble O. & R. Co.'s No. 2 Devilbiss, 1,850 ft. S, 350 ft. W of NE cor. Sec. 14-9s-4w .....T.D. 7,344 ft; reaming.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 13 Houssiere-Latrielle, Sec. 47-9s-3w, 300 ft. E of No. 12 .....Drlg. shale 4,925 ft.

STARKS—CALCASIEU PARISH

Union Sulphur Co.'s No. 2 Industrial, 1,345 ft. N, 390 ft. E of SW cor. Sec. 20-9s-12w .....Drlg. shale 4,200 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 744 fee (W.O.), 2 ft. S, 34 ft. W of C Sec. 29-9s-10w.....Comp. 630 bbls. P.L. oil; ½-in. choke, 5,591 ft.

Union Sulphur Co.'s No. 783 fee, Sec. 29-9s-10w .....Salt 5,117-5,202 ft.

Union Sulphur Co.'s No. 785 fee, 836 ft. N, 703 ft. E of center of Sec. 29-9s-10w .....Drlg. shale 2,610 ft.

ST. MARTIN PARISH

Standard Oil Co. of Kansas' No. 1 E. B. Hopkins, Sec. 33-10s-6e .....Drlg. shale 4,320 ft.

TERREBONNE PARISH

Sun Oil Co.'s No. 1 State-Taylor Bayou, 3,216 ft. S, 3,790 ft. E of NW cor. Sec. 22-21s-14e .....Drlg. shale 4,155 ft.

The Texas Co.'s No. 8 State-Caillou Island, 1,050 ft. S, 2,770 ft. E of NW cor. Sec. 30-23s-20e .....Oil sand 5,972 ft; 7-in. csg. at 5,971 ft.

The Texas Co.'s No. 8 State-Dog Lake, 4,967 ft. W, 1,877 ft. N of SE cor. Sec. 31-21s-16e .....T.D. 5,400 ft; sidetracked at 2,804 ft.; drlg. new hole 4,920 ft.

GASOLINE YIELD INCREASED 1% *by* TAYLOR DUBL-RESPONSE REGULATOR

New development brings more precise, automatic temperature control in Western refinery

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Straight line control is a fact. "Hunting" is a thing of the past. Stuffing box friction is overcome. Throttling valve action is a surety.

This new Taylor Control consists of a Taylor Singl-Duty Recording Regulator and the Dubl-Response Control Unit mounted on a Taylor diaphragm valve. No expert knowledge is necessary to install or maintain the equipment.

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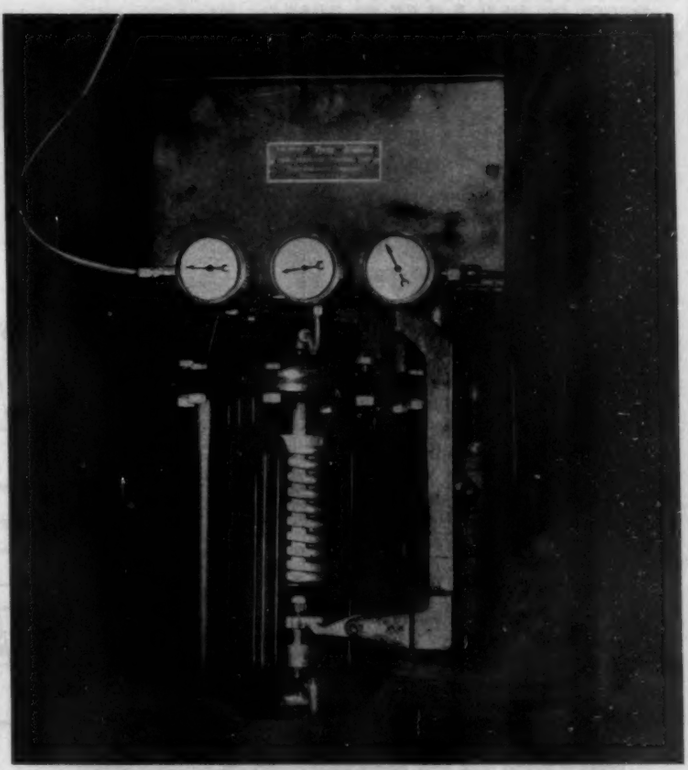
Write for the special Taylor Dubl-Response Regulator booklet and let us help you determine how this new development can be applied in your refinery. Address Taylor Instrument Companies, Rochester, N.Y.



*Tycos Taylor TEMPERATURE and PRESSURE INSTRUMENTS

*The name Taylor now identifies our complete line of products including Tycos instruments.

INDICATING · RECORDING · CONTROLLING

The Texas Co.'s No. 1 State-Four Isle, 1,800 ft. N, 1,700 ft. W of SE cor. Sec. 23-21s-14e ..... Drlg. shale 5,875 ft.

TEXAS

MISCELLANEOUS WILDCATS

AUSTIN COUNTY

A. N. Phillips et al's No. 1 Grigor, 2,150 varas from E line, 1,550 varas from N line of J. S. O'Connor Sur. ..... Derrick.

Turnbull et al's No. 1 Watson, Stephen F. Austin Sur. No. 6, 150 ft. out of SE cor. of 115.6-ac. tract ..... Drlg. surface formation 180 ft.

BRAZORIA COUNTY

E. A. Andersen et al's No. 1 Reynold, Johnson, Walker & Borden League, 5,502 ft. from W line, 350 ft. from W line of 122-ac. lease ..... S.D. 2,005 ft.

Amerada Pet. Corp. and Rycade Oil Corp.'s No. 4 Seaburn, Austin & Williams Sur., 150 ft. W of No. 3 on line with Nos. 1, 2 and 3 ..... Salt 4,307 ft; drill pipe stuck; abd.

Danciger O. & R. Co.'s No. 2 Hunt, 6,550 ft. from E line, 5,550 ft. from S line of W. Carson Sur. ..... Coring sandy shale and showing oil 7,711 ft.

COLORADO COUNTY

Humble O. & R. Co.'s No. 1-B O. M. Powell, 1,399 ft. from S line, 467 ft. from W line of Sec. 45, I.&G.N. Sur. ..... Drlg. shale 4,446 ft.

McCulloch Oil Co.'s No. 1 Kamsteiner, Leiander Beason Sur., 300 ft. out of NE cor. of tract ..... Drlg. shale 3,995 ft.

Plymouth Oil Co.'s No. 1 Broussard, 2,200 ft. N and 426 ft. W of SW cor. Sec. 47, I.&G.N. Sur. ..... Derrick.

Plymouth Oil Co.'s No. 1 Ream, 330 ft. out of NE cor. of I.&G.N. Sur. No. 47 ..... Tested S.W. 6,231 ft; abd.

Weimar Oil Co.'s No. 1 H. T. Brandt, F. Pettus Sur., 350 ft. from N line, 350 ft. from E line of tract .... Drlg. shale 5,337 ft.

Weimar Oil Co.'s No. 1 Miller ranch, approx. center H.&T.B. Sur. No. 9 ..... Derrick.

FORT BEND COUNTY

Freano Oil Corp.'s No. 1 M. T. Wood, T. Gleason Sur., center of 10-ac. tract (Blk. 474) ..... Sand 3,900 ft; S.D. for derrick repairs.

GRIMES COUNTY

Cambrian Oil Co.'s No. 1 W. V. Sangster, John Moore Sur., 300 ft. out of most westerly NW cor. of 218-ac. tract ..... Derrick.

Koch et al's No. 1 Haferkamp, Samuel Fulton Sur., 335 ft. from S line, 347 ft. from E line of 159 acres.. Dry and abd. 3,779 ft.

Petroleum Southwest Co.'s No. 1 Greer, Pat O'Connor Sur., 200 ft. from W line, 400 ft. from N line of 150-ac. tract ..... Coring shale 3,200 ft.

HARRIS COUNTY

Aven Oil Co.'s No. 1 Herman Teske, J. Duckworth Sur., 150 ft. from S line and 184 ft. from E line of 160 acres ..... Abd. in shale 5,040 ft.

Cockburn Oil Corp.'s No. 1 C. Marcus, Wm. Hardin Sur., 1,500 ft. S along E line of 55-ac. tract from Buffalo Bayou and 300 ft. W at right angles ..... Rigging up.

Gohlson & Parson's No. 1 W. E. Freeman, 330 ft. SE cor. Sec. 57, Blk. 2, H.&T.C.R.R. Sur. ..... Drlg. shale 4,049 ft.

Hamill Drlg. Co.'s No. 1 Clara W. Walker (38 acres), Chas. Sage, 250 ft. W of E line, 660 ft. S of south bank of Buffalo Bayou ..... Drlg. sand and lime 3,278 ft.

Hamilton et al's No. 1 Hargroves, W. C. Ry. Sur. No. 10, Blk. 1; 1,750 ft. from E line, 645 ft. N line .... Drlg. shale 4,615 ft.

Huffman Dome Dev. Co.'s No. 1 E. M. House, Mary McGruder Sur., 590 ft. E of NW cor. H.E.&W.T. Ry. and 954 ft. N at right angles ..... Abd. in shale 5,083 ft.

H. B. Jordan's No. 1 Cochran, J. L. Jordan Sur., 1,950 ft. S line, 1,930 ft. E line ..... S.D. 1,975 ft.

Jack Schultz et al's No. 1 Woodburn, 450 ft. NW of center of August Whitlock Sur. ..... Fishing drill pipe 5,780 ft.

JACKSON COUNTY

Continental Oil Co.'s No. 1 Vincek, V. Garcia Sur., 1,800 ft. W, 200 ft. N of SE cor. of Lot 17, Bennett Subd. ..... Derrick.

The Texas Co.'s No. 1 Mitchell, S. F. Austin League, 450 ft. W, 450 ft. S of NE cor. of 63-ac. tract, Lot 28, Clement Subd. ..... Drlg. sand and shale 5,763 ft.

JEFFERSON COUNTY

Sun Oil Co.'s No. 1 Paggi, 990 ft. W, 1,610 ft. N of SE cor. of T.&N.O. Sur. No. 32 ..... S.D. for high wtr. 3,854 ft.

LIBERTY COUNTY

J. K. Seale, tr.'s No. 1 T. W. Finley, A. B. Hardin Sur., 330 ft. out of SW cor. of 25-ac. tract ..... Derrick.

Yount Lee Oil Co.'s No. 1 E. W. Boyt, H.&T.C. Sur., Sec. 17, 300 ft. from S line, 2,440 ft. from E line of section ..... Drlg. hard shale 9,521 ft.

MATAGORDA COUNTY

Continental Oil Co.'s No. 1 Baker, 400 ft. out of SW cor. Lot 17, Robbins & Middle Subd., J. W. Criswell Sur. ..... Drlg. shale 4,212 ft.

United North & South Dev. Co.'s No. 1 Unit 6 (No. 2 Stoddard), 25 ft. each way out of NW cor. of Lot 19, Buckeye Townsite ..... Shale and lime 7,780 ft; to set 7-in. csg.

United North & South Dev. Co.'s No. 1 Unit 14 (No. 1 Dr. Plotner), 1,310 ft. SE of No. 1 Stoddard and 136 ft. W of right of way of Collegeport branch of St. L.&B.M.R.R., Buckeye ..... S.D.; W.O. 7,862 ft.

United North & South Dev. Co.'s No. 1 Unit 25, 1,335 ft. S, 1,000 ft. E of No. 1 Unit 6 ..... Setting screen 7,870 ft.

MONTGOMERY COUNTY

Fostoria Oil Co.'s No. 1 Foster Lbr. Co., 1,180 varas W, 627 varas N of SE cor. H.T.&B. Sur. No. 2 ..... Drlg. sandy shale 5,227 ft.

Showers & Moncrief's No. 1 Rohlf, 694 ft. from S line, 3,325 ft. from W line of Daniel Garrett Sur. (Abst. 224) ..... Drlg. shale 3,235 ft.

POLK COUNTY

C. E. Stewart's No. 1 Stephenson, E. Stevenson Sur. (Abst. 761), 1,633 ft. from N line, 920 ft. from W line of 217 acres ..... Rig.

REFUGIO COUNTY

Humble O. & R. Co.'s No. 7 O'Connor, F. Rios Sur., 12,782 ft. from S line, 1,852 ft. from E line ..... Coring sand S.O. 3,120 ft.

SAN JACINTO COUNTY

Piedmont Oil Co.'s No. 1 Foster Lbr. Co., 500 ft. out of NW cor. of G. Taylor Sur. ..... Derrick.

VICTORIA COUNTY

Gulf Prod. Co.'s No. 4 Keeran, Martin DeLeon Sur., 3,320 ft. N 41 deg. 43 min. W, parallel to NE line of lease from No. 1 ..... Drlg. hard shale 4,666 ft.

The Texas Co.'s No. 6-A McFaddin, 5,600 ft. from NE line, 250 ft. from SE line of A. J. Gray ..... Gas sand 3,039-49 ft.; pumping wtr. and mud into sand to kill pressure.

The Texas Co.'s No. 7 McFaddin, 6,600 ft. S 15 deg. W, 450 ft. N 75 deg. W at right angles from the NE cor. of the A. J. Gray Sur. ..... T.D. 1,176 ft; blowing gas and mud.

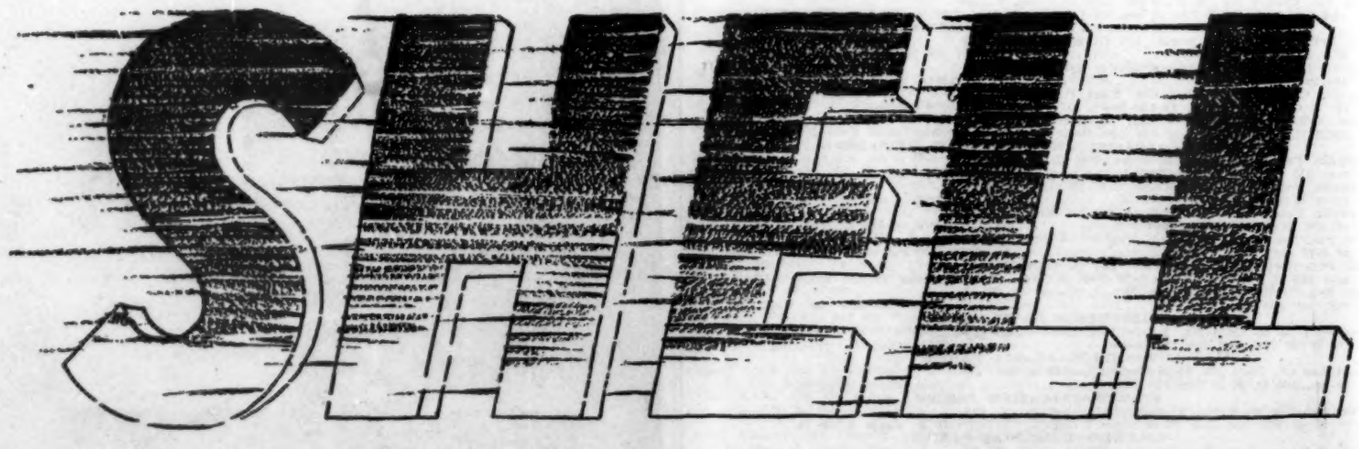
WALLER COUNTY

Hobson & Moore's No. 1 Peters, Justo Liendo Sur., 590 ft. W of creek, 1,144 ft. N of S cor. ..... No report.

Texas Seaboard Oil Co.'s No. 1 B. Schwartz, Isaac Best Sur., 1,050 ft. from S line, 1,100 ft. from E line of 800-ac. tract ..... Derrick.

WASHINGTON COUNTY

Clark & Cowden's No. 1 F. A. Ammons, S. Woodward Sur., 16,500 ft. from N line, 775 ft. from E line of survey ..... Derrick.



WHARTON COUNTY

Nabers et al's No. 1 Lusker, 210 ft. out of SE cor. of N½ SW Sec. 55, E.T.R.R. Sur. ..... R.U. to deepen 5,026 ft.

Pure Oil Co.'s No. 1 Stewart, 2,419 ft. NW, 1,650 ft. NE of S cor. of Sec. 35, Morris & Cummings Sur. ..... T.D. 8,015 ft; P.B. to sand at 5,963-71 ft; cmtd. 9⅝-in. csg. 5,961 ft.

Pure Oil Co.'s No. 1 Chas. T. Kuntze, 2,183 ft. from NW line, 467 ft. from SW line, Sec. 27, Morris & Cummings Sur. ..... Drlg. sandy shale 5,260 ft.

Smith & McDannald and Shell Pet. Corp.'s No. 1 Ridgeway, 1,980 ft. from S, 660 ft. from W of NE cor. Sec. 3, H.&T.C. Sur. ..... Drlg. green shale 4,601 ft.

Wildcat Operations in Louisiana-Arkansas

(Continued from Page 43)

NEVADA COUNTY

Longoria et al's No. 1 Dick Gulley heirs, Sec. 2-12-20.... Began drlg. July 5 and S.D.

Mississippi

JONES COUNTY

Snow-Black Pet. Co.'s No. 1 Watson, 600 ft. W, 210 ft. S, center, Sec. 24-7-13 ..... Drlg. gumbo 2,250 ft.

LAMAR COUNTY

Lamar Oil Co.'s No. 1 Scott, NE NE Sec. 18-2n-14..... Drlg. sandy shale 2,640 ft.

WALTHALL COUNTY

Mutual O. & G. Co.'s No. 1 Boyd, Sec. 24-2n-9e, SW cor. SW SE ..... Derrick pattern.

WARREN COUNTY

Kistler & Stivers' No. 1 Blake est., 1,215 ft. NE Blakely Station, Sec. 15-17-5 ..... Drlg. shale and shell 4,800 ft.

Louisiana-Arkansas Proven Areas

North Louisiana

CADDO—BETHANY

Company, well, farm name, section and block— Remarks:

Tom Collins Pet. Co.'s No. 1 Gill & Lipscomb, 660 ft. N, 1,506 ft. E, SW cor. Sec. 17-16-16 ..... Derrick.

CADDO PARISH—BLANCHARD

Nick Barbare's No. 2 P. A. Sharpe, 330 ft. S and W, NE cor. NE SE Sec. 9-18-16 ..... Drlg. 1,650 ft.

Calatex O. & G. Co.'s No. 1 G. M. Agurs, Sec. 9-16-16.... Derrick.

CADDO—RODESSA

Ark. La. P. L. Co.'s No. 1 Williams & Windham, Sec. 4-22-16, 660 ft. S, 660 ft. E, NW cor. NE NW ..... Drlg. gray shale and lime 4,416 ft.

United Gas Public Service Co.'s No. 1 Festervan, Sec. 23-23-16, 1,980 ft. N, 1,320 ft. E, SW cor. ..... Cmtd. 7⅝-in. csg. 3,536 ft.

DE SOTO PARISH

Tom McKinney et al's No. 1 J. M. Nabors, 330 ft. N and E, SW cor. SE SE Sec. 26-12-12 ..... Rig up.

MOREHOUSE PARISH

United Gas Public Service Co.'s No. 29 Crossett Lbr. Co., 661 ft. E, 660 ft. N, SW cor. SW SW Sec. 17-22-5 ..... Derrick.

United Gas Public Service Co.'s No. 30 Crossett, Sec. 25-22-4e ..... Cmtd. 6⅝-in. 2,168 ft.

United Gas Public Service Co.'s No. 2 Patton, 3,375 ft. S, 2,917 ft. E, NW cor. Sec. 12-20-11 ..... Cmtd. 6⅝-in. 2,162 ft; bailing to test.

RED RIVER PARISH

E. M. Thompson's No. 1 T. J. Crichton, SW SE Sec. 17-13-10 ..... Tested S.W.; S.O. 940 ft.; S.D.

SABINE PARISH—ZWOLLE

J. C. Chandler's No. 1 Rains, SW cor. NW Sec. 14-7-11.. Rigging up.

Dyer et al's No. 1 McCollister, 330 ft. S and E, NW cor. SW NE Sec. 24-7-12 ..... Derrick.

T. E. Kelly's No. 1 McClanahan, 1,000 ft. S, 330 ft. E, NW cor. SW NW Sec. 36-8-11 ..... Rig up.

H. C. Maulding's No. 1 DeLatin, Sec. 8-7-11..... S.D. 2,215 ft.

Ben Merritt et al's No. 1 L. A. Cook, 336 ft. N, 333 ft. W, SE cor. Sec. 34-8-11 ..... W.O.S.R.; 1,000 ft. oil in hole; T. D. 2,560 ft.

C. H. Tuttle's No. 4 Byrd, 300 ft. S, 930 ft. E, NW cor. NW NW Sec. 7-7-10 ..... Derrick.

A. L. and E. J. Waller, tr.'s No. 1 J. A. Greer, 108 ft. N, 560 ft. W, SE cor. SW NE Sec. 24-8-12 ..... Began drlg. July 19; cmtd. 10-in. 42 ft; S.D. 1,600 ft.

C. T. Ruffin's No. 4 Lilley, 330 ft. S and E, NW cor. NW NW Sec. 8-7-11 ..... Rig up.

Mississippi

HINDS COUNTY

Atkins & Hightower's No. 1 Woodland Hills, 400 ft. W, 487 ft. N, SE cor. NW NE Sec. 26-6-1e ..... Cmt. 8-in. 770 ft; drlg. 2,150 ft.

RANKIN COUNTY

J. A. Alexander, tr.'s No. 1 Love Pet. Co., 600 ft. W, 240 ft. S, NE cor. NW NE Sec. 1-5-1e ..... Drlg. sand 2,195 ft.

Muse & Muse's No. 1 Carlton, Sec. 13-5n-1e, 650 ft. E, 725 ft. N, SW cor. ..... Cmtd. 6-in. 2,407 ft.

EAST TEXAS (Border Counties)

MARION COUNTY

Terry et al's No. 1 E. B. Colgin, 300 ft. N and E, SW cor. Martin Noll Sur. ..... Derrick.

PANOLA COUNTY

W. H. Nichols et al's No. 1 S. W. Ray, 330 ft. S of N line, 330 ft. W of E line, W. P. Culver Sur. ..... Derrick.

M. H. Robbins et al's No. 1 Alzee Williams, 165 ft. N and E, SW cor. 30-ac. tract in Winnie Mann Sur. ... Derrick.

Wildcat Operations in Southwest Texas

(Continued from Page 45)

Austin Hull's No. 1 Classen, 268 ft. from W line, 2,500 ft. from S line of tract, 12 miles N of San Antonio.. T.D. 1,810 ft; trying to run csg.

M. L. Howard's No. 1 James Watson, 500 ft. from W line, 2,000 ft. from S line, Sec. 16, B. Martinez Sur., 13 miles S from San Antonio ..... T.D. 2,535 ft; trying to put it on the pump.

LaSalle Oil Co.'s No. 1 City Sewage farm, 150 ft. S of Rilling Road, 450 ft. W of NE cor. of tract in D. Bustillos Sur. ..... T.D. 55 ft.; setting surface csg.

Motes-Campbell's No. 2 Pruitt, 300 ft. N of No. 1 on 187-ac. tract, McCullough County Sur., Blk. 4,299.... T.D. 1,833 ft; in crevice in Edwards.

H. A. Pagenkopf's No. 1 G. A. Goeth, 500 ft. from SE line, 600 ft. from SW line which is San Antonio River, Juan Montes Sur. ..... T.D. 699 ft.; drlg.

O. L. Ray's No. 1 Thos. Dillon, 3,800 feet from NW line, 1,750 ft. from most southerly SW line of de Luna grant in southern part of county ..... T.D. 680 ft; standing.

J. Morgan Russell's No. 2 Brotze, 200 ft. W of No. 1, in Cordenas Sur. ..... T.D. 340 ft.; standing.

C. A. Smith's No. 1 Henry Lamb, 750 ft. from N and E lines of Lamb farm, in de la Garza grant ..... Spudded in and waiting for heavier rig.

F. E. Tegler's No. 1 Brackenridge, 575 ft. from S line, 2,284 ft. from W line of tract in Maria Gertrudis de Alaniz Sur. ..... T.D. 965 ft; standing.

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THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

Tipton's No. 1 Gembler, 514 ft. from W line, 616 ft. from N line of 120-ac. tract in M. Gotari Sur. ..... Spudded in.

BLANCO COUNTY

Blanco Development Co.'s (McGee) No. 1 A. J. Dittmar, 1,320 ft. from S line, 150 ft. from W line of George Evans Sur. No. 48, 4 miles NW of Johnson City ..... T.D. 615 ft; drlg. shale.

Isham et al's No. 1 Lester ranch, 200 varas from N and E lines of Antonio Bandrand Sur., 8 miles NE from Johnson City ..... T.D. 100 ft; standing.

CALDWELL COUNTY

Cargill et al's No. 1 Brown, 1,400 ft. from E line, 330 ft. from S line of C. E. Brown 112-ac. tract, Dillard Cooper Sur. ..... T.D. 2,035 ft; standing.

E. L. Hope and Joe Cole's No. 1 Mike August, 150 ft. from NE line, 165 ft. from NW line of tract ..... T.D. 1,875 ft; putting in second boiler.

F. L. Thomson's No. 1 W. M. Mercer, 1,062 varas from SE, 1,175 varas from SW line of Jas. Berry Sur. .... Fishing for slip.

DE WITT COUNTY

L. G. Wade's No. 1 fee, 6 mi. S from Yoakum, 520 ft. from NW line, 160 ft. from SW line of 35-ac. tract in Lavina Dunbar Sur. ..... T.D. 2,402 ft; S.D.

DUVAL COUNTY

Clark & Miller's No. 1 R. Lopez, 150 ft. from N line, 330 ft. from W line of Sur. 141, S. C. I. Co., 8 miles SW from San Diego ..... T.D. 1,890 ft; S.D.

M. J. Coffey's No. 1 Parr, 591 ft. from W line, 370 ft. from N of NW cor. of Sec. 2, located in Sur. 27 ..... T.D. 1,710 ft; D.S. stuck.

T. J. Conway and C. A. Campbell's No. 1 W. K. Hoffman, 300 ft. from NW line, 1,650 ft. from NE line of Sur. No. 114 ..... Spudded in.

T. J. Conway and C. A. Campbell's No. 1 W. K. Hoffman, 330 ft. from NW line, 1,650 ft. from NE line of Sur. No. 114 ..... T.D. 320 ft.; comp. as fresh wtr. well; skidding rig a few feet.

DeSoto Oil Co.'s No. 2 Wood-Welder, 660 ft. E of No. 1 (950 ft. from N line, 2,640 ft. from W line of Sur. No. 211 ..... T.D. 1,410 ft.; drlg.

Huff et al's No. 1 A. Rosch 655 ft. from E line, 43 ft. from S line of Blk. 7, Sur. No. 467 ..... Spudded and S.D.

G. G. Mortimer's No. 1 Peal, 330 ft. from S and W lines of Sur. No. 792 ..... T.D. 2,411 ft; fishing.

William B. Stewart's No. 3 Duval County Ranch Co., 300 ft. from E line, 330 ft. from W line of S half of SE, Sur. 363 ..... T.D. 2,157 ft.; drlg.

FRIO COUNTY

Amerada Pet. Corp.'s No. 1 Frank Doering, 34 ft. from W line, 1,700 ft. from S line of Tract No. 7 in Maria Louisa Carranza Sur. No. 307 ..... Drlg. wtr. well.

J. E. Greenlee's No. 2 Burns, 150 ft. from W line, 1,500 ft. from S line of SE of 160-ac. tract, Castro Sur. No. 123 ..... T.D. 2,300 ft; drlg.

GILLESPIE COUNTY

Powers et al's (Nixon-Dore) No. 1 Andrew Lindig, 18 mi. E of Fredericksburg ..... T.D. 730 ft; drlg. limey shale.

GOLLIAD COUNTY

Gillette Oil Co.'s No. 1 Lackey & Weldon, 1,730 ft. from NE line, 2,700 ft. from SE line of 1,000-ac. tract, Navarro Gomez Sur. ..... T.D. 1,200 ft.; drlg.

GUADALUPE COUNTY

Clint Lanier's No. 1 L. D. Hill, 450 ft. from NW line, 1,450 ft. from NE line of George Allen Sur. ..... Rig on ground.

J. A. Harper's No. 1 Rosenbrook, 911 ft. from NE line, 150 ft. from NW line of tract in Vincente Duran Sur. No. 4 ..... T.D. 756 ft; setting csg.

W. J. Walton's No. 1 M. Hoffman, 750 ft. from E line, 150 ft. from S line of tract in Green Dewitt Sur. .... T.D. 2,600 ft.; drlg.

HIDALGO COUNTY

Carl & Johnston's No. 1 Doughty, 187 ft. from S and E lines of Lot 11, Blk. 6 of Subd. of Indios Ranch Sur. in N. Hidalgo ..... T.D. 3,009 ft.; drlg.

Maxwell & Young's No. 1 King, 175 ft. from N and E lines of Lot 4, Blk. 14, Alamo tract ..... T.D. 125 ft.; resumed drlg.

JIM HOGG COUNTY

Cole Pet. Co.'s No. 1 Vela and Pena Bros., 320 ft. from W line and on line between Blks. 80 and 81, White Subd. of Share 2, Sur. 555, of El Poyote grant ..... Rigged up.

D. C. DeWitt's No. 1 A. G. Lopez, 2,475 ft. from W line, 425 ft. from N line of Sur. No. 106 ..... T.D. 1,650 ft; standing.

R. F. Forse's No. 1 Holbien, 150 ft. from N and W lines of Blk. 54, Sec. 9 of Holbien Sur. of Share 3 of Las Animas grant ..... T.D. 3,120 ft; standing.

Seaton A. Barnes, Jr.'s No. 1 R. Holbien, 330 ft. from W line, 340 ft. from S line, of Blk. 54, share 3, Los Animas tract ..... T.D. 2,323 ft; coring.

Shankle et al's No. 1 Thompson, Blk. 19, Share 2, Las Animas grant ..... T.D. 2,514 ft; drlg.

KARNES COUNTY

Accumulative Royalty Co.'s No. 1 Rudd, 6 mi. S from Karnes City ..... T.D. 1,108 ft; drlg.

Karnes Co. Dev. Co.'s No. 1 S. Saige, 150 ft. E of C of W line of Wm. Pate Sur. ..... T.D. 960 ft; drlg.

John S. Pickett's No. 1 Saige, 150 ft. from W line, 750 ft. from N line of John Pate Sur., 2 mi. N from Karnes City ..... T.D. 100 ft; drlg.

KENDALL COUNTY

E. W. Martin's No. 1 Houston, in F. Wright Sur. ..... T.D. 727 ft; drlg limey shale.

KERR COUNTY

J. E. Anderson's No. 1 J. D. Witt, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 1,923, in Hamilton Sur., 4 miles S of Center Point ..... T.D. 1,520 ft; drlg.

W. E. Clark's No. 1 Love, 660 ft. from N and W lines of Mrs. Cassandra Winn Sur. No. 1,759 ..... Rigging up.

Evans & Gant's No. 1 Love, 660 ft. S of S line of Sur. 1,597, 1,320 ft. from W line of Sur. 1,594 ..... T.D. 4,060 ft; R.U. to pull csg. to test at 3,391 ft; if it fails will be carried to Ordovician.

LA SALLE COUNTY

C. B. Bunte's No. 1 Mrs. T. A. Coleman, CNL NE Sec. 68, Poitevant Sur. ..... T.D. 2,660 ft; drlg.

W. H. Wallace's No. 1 H. C. Yeager, 150 ft. from S and E lines of Sur. No. 95 ..... T.D. 1,360 ft; drlg.

LEE COUNTY

LIVE OAK COUNTY

Coquat, O'Neill & Phillips' No. 2 Sanger, 2,930 ft. from SW line, 330 ft. from SE line of Sur. No. 350..... T.D. 350 ft; drlg.

Loma Oil Co.'s No. 1 A. J. Turner, 4,000 ft. from SW and 160 ft. from SE line of 660-ac. tract in Hays Sur. 2 mi. NE from Griffith well ..... T.D. 100 ft; drlg.

R. P. Whitfield's No. 1 Terrell, SW cor. of 2,500-ac. tract in David O'Boyle Sur., 5 mi. NW from Three Rivers ..... T.D. 665 ft; S.D.; depth previously reported in error.

McMULLEN COUNTY

Darby Oil Co.'s No. 1 Sling, 150 ft. from S and E lines of NE of B.S.&F. Sur. No. 111 ..... T.D. 1,902 ft; standing for wtr.

John V. Edwards' No. 1 J. T. Brown, 150 ft. from river, 150 ft. from NW cor. of Brown tract, E from Calliham ..... Drlg. 300 ft.

C. R. Pope, Inc.'s No. 1 A. C. Miles, 300 ft. to E line, 2,375 ft. to S line, Sur. 149 ..... T.D. 2,165 ft; no report.

Shumway et al's No. 1 Wulf, Sur. 4 miles SE from No. 2 Shiner, 1,730 ft. from S line, 187 ft. from W line of Steinhardt Sur. No. 190 ..... T.D. 1,910 ft; drlg.

S. R. & C. Oil Corp.'s No. 1 Reeves, 1,650 ft. from S line, 330 ft. from E line of Francis Smith, No. 4 Sur. ..... Spudded in.

R. P. Whitfield's No. 1 Jacob, 1,335 ft. from S line, 355 ft. from E line of NE Sec. 9, of Jacob ranch, 1 mi. NW from Jacob Pool ..... T.D. 950 ft; bailing.

MILAM COUNTY

Ed Clark et al's No. 1 Thomas Graves, 250 ft. from SW and NW lines of Jackson Hall Sur. ..... T.D. 802 ft; standing.

Clark et al's No. 1 Hoppe, 450 ft. from NE line and 450 ft. from SE line of E. Hoppe 60-ac. tract in Juan Jose Acosta Sur. ..... T.D. 520 ft.; standing.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Denmann, 150 ft. S of N line, 150 ft. E of W line of Sec. 16, Bonnieview Subd. ..... T.D. 4,733 ft; resumed work with new leases; washing down at 1,300 ft.

SAN PATRICIO COUNTY

George W. Scruggs' No. 1 Collins, 1,040 ft. from NE line, 700 ft. from SE line of Blk. 36, E. J. McGlein Sur. ..... T.D. 2,756 ft; changing to heavier rig.

STARR COUNTY

S.&B. Oil Co.'s No. 1 Crown Brick & Tile Co., 1,800 ft. S of State Highway No. 4 and 580 ft. from W line of Porcion 47, near La Puerta ..... T.D. 4,560 ft; fishing.

W. P. Chancellor's No. 1 A Guerra, 26,000 ft. from S line, 2,600 ft. from E line of Share No. 6 of San Jose Grant Sur., NE cor. of county ..... T.D. 1,950 ft; drlg.

F. R. Cooper's No. 1 J. M. Martinez, 150 ft. to S and E lines of A.B.&M. Sur. No. 135 ..... T.D. 3,040 ft; drlg.

Great Plains Oil Co.'s No. 1 Sanchez, 660 ft. from W line, 330 ft. from S line of SE NW of Sur. No. 344 ... T.D. 2,300 ft.; standing.

Jeffries and Lambeth Drlg. Co.'s No. 1 Starr County Cattle Co., 11,573 ft. from N line, 2,400 ft. from E line of Porcion 59, Sur. jurisdiction Camargo, 8 miles NE from Rio Grande City ..... T.D. 2,455 ft; D.S. test showed big volume of gas in 3 min.; set csg.; show of oil in mud; 5 ft. in sand.

E. H. Stickney's No. 1 H. Gonzales, 300 ft. from E line, 3,166 ft. from S line of H.E.&W.T. Sur. 339.... T.D. 1,256 ft.; abd.

Sun Oil Co.'s No. 1-B Guerra, 9,677 ft. from SE line, 2,300 ft. from SW line of Share H-14-B Sur., La Cuevitas grant ..... T.D. 3,250 ft; drlg.

Sun Oil Co.'s No. 1-C Guerra, 4,861 ft. from NW line, 660 ft. from NE line of Sur. La Sacatosa grant .... T.D. 2,380 ft; drlg.

Goodwain & Yantis' No. 1 Seabury, 150 ft. from S and W lines of Sec. 107, Share No. 1, Porcion No. 107.... T.D. 2,265 ft; fishing for D.S.

TRAVIS COUNTY

Franklin et al's No. 1-A Reimers, 1,200 ft. from SE line, 1,600 ft. from most southerly SW line of Sur. No. 35 ..... T.D. 420 ft; csg. stuck.

Holdin's No. 1 D. V. Collins, 4,192 varas from SE line, 10,446 varas from SW line of Santiago de Valle Grant Sur. ..... T.D. 810 ft; standing.

UVALDE COUNTY

Frank A. Brown's No. 1 J. A. Milliken, 1,800 varas from W line which is Sabinal River, and 108 varas from S line of Antonio Cruz Sur. No. 883 ..... T.D. 100 ft; T.A.

Evans & Thompson's No. 1 Farris, 400 ft. from S and W lines of 635-ac. tract near center of John J. Hammond Sur. ..... T.D. 300 ft; renewing leases to correct title.

O. A. Payte's No. 1 Riddle, 150 ft. from N line, 1,050 ft. from E line of 150-ac. tract, Blk. 471, Kilgore Sur. ..... T.D. 800 ft; S.D.

John Roberts' No. 1 Kincaid, 4 mi. N of Sabinal ..... T.D. 705 ft; drlg.

WEBB COUNTY

Danvers & Harrison's No. 1 Benavides, 2,490 ft. from E line, 2,497 ft. from S line of Sur. No. 669 ..... Spudded in.

Danvers & Harrison's No. 1 Benavides, 2,490 ft. from S and E lines of Sur. No. 669 ..... Spudded in.

Edwin M. Jones' No. 2 Callaghan, 330 ft. from S and E lines of C.C.S.D.&R.G.N.G. R.R. Sur. No. 1,211.... Rigging up.

Grey Oil Corp.'s No. 1 A. S. Billings, 2,310 ft. from N line, 330 ft. from W line of Blk. 1, C.C.S.D.&R.G. N.G. Sur. No. 13 ..... T.D. 1,390 ft; drlg.

P. G. Rouse's No. 1 S. M. Withers, 3,000 ft. from E line, 400 ft. from N line of Sur. No. 28 ..... T.D. 1,378 ft; abd.

Shankle & Roche's No. 1 W. W. Stell, 660 ft. from N and W lines of NW NW of No. 27 Sur., 11 miles N from Mirando City ..... T.D. 2,500 ft; resumed drlg.

Will Ohlhausen's No. 1 Moses Jones, 975 varas from E line, 516 varas from S line of 100-ac. tract in Sur. No. 1,640 ..... T.D. 850 ft.; standing.

Washabaugh & Roberts' No. 1 Bruni, 1,170 ft. from NE line, 150 ft. from NW line of E½ of 160-ac. tract in Sur. 139 ..... T.D. 43 ft; set surface csg.; drlg. wtr. well.

WILLIAMSON COUNTY

R. S. Wilson's No. 1 Ritchey, 1,200 ft. from SE line, 200 ft. from NE line of F. B. Ritchey 93-ac. tract in Simon Miller Sur. ..... T.D. 1,880 ft; drlg. shale.

WILSON COUNTY

Humble Oil & Refining Co.'s No. 1 Hardy, 667 ft. from S line, 466 ft. from E line of Hardy 65-ac. tract in Joseph Reynolds Sur. ..... T.D. 5,218 ft; abd.

ZAPATA COUNTY

J. C. Charver's No. 1 Bustamente, 330 ft. from N and E lines of 24-ac. tract in Share 24 of Las Comitas grant ..... T.D. 20 ft; drlg.

Hamilton, Brower & Crow's No. 1 Slator, 2,111 ft. from SW line, 1,980 ft. from SE line of Blk. 1, Subd. of Slator ranch in J. V. Borrego grant ..... T.D. 1,069 ft; stanc'ing.

Circle W. Oil Co.'s No. 1 M. Garza est., 623 ft. from NW line and 699 ft. from SW line of Blk. 30, C. A. Douglas Subd. of Charco de la India grant ..... Rigged up; standing.

J. P. Doyle's No. 1 I. Ramirez, 150 ft. from NW and SW lines of Blk. 15, Share 1, Porcion 18 ..... Spudded in.

O. W. Killam's No. 2 A. M. Bruni, 750 ft. from SE line, 160 ft. from SW line in Blk. 6, Sur. No. 15.... Derrick.

O. W. Killam's No. 1 A. M. Bruni est., 670 ft. from NE line, 150 ft. from NW line of Blk. 4, Sur. No. 15 .... T.D. 1,891 ft; abd.

Sarah Poppas' No. 1 Juan V. Cueller, Jr., 150 ft. from NE and SE lines of Blk. 3, Sur. 2 of Poppas Subd. of Por. 24 ..... T.D. 800 ft; drlg.

A. C. Savoy et al's No. 1 Flores, 150 ft. from NW line, 306 ft. from NE line of Blk. 4, Share 1 of P. A. Richer Subd. of Porcion No. 36 ..... T.D. 2,404 ft; standing.

Stevens & Brown's No. 1 Alexandro Garcia, 660 ft. from SW line, 660 ft. from NW line of Blk. 6, Stevens & Brown Subd. of W 700 acres, Charco Redondo grant, A. Garcia tr. 16 miles SE of Zapata ..... T.D. 1,250 ft; standing.

Arthur H. Wray's No. 1 Gopher Trust Est., 300 ft. from NW line, 1,020 ft. from SW line, Blk. 14, Sur. 1, Fullerton Subd., Share 3, in J. V. Borrego Grant Sur. ..... Waiting on wtr.

ZAVALA COUNTY

Zavala O. & G. Co.'s No. 1 Gates, 1,320 ft. from N line, 1,320 ft. from E line of Hooper & Wade Sur. No. 13.. T.D. 6,054 ft; hole cleared; standing.

Southwest Texas Proven Areas

Week Ending July 29

CEDAR CREEK—BASTROP COUNTY

Company, well, farm name, section and block—	Remarks
Marts & Beavens' No. 1 Orgain, 1,500 ft. from SW line, 200 ft. from NW line of tract in Addison Litton League	Spudded in.

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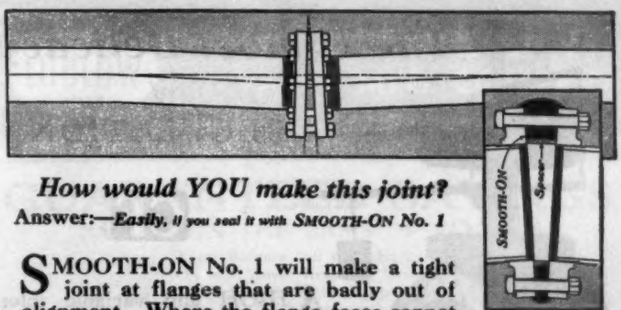

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HILBIG POOL—BASTROP COUNTY

Humble O. & R. Co.'s No. 7 Wilhelm, 385 ft. S of CNL of 222-ac. tract in Mays Sur. ..... T.D. 2,280 ft; drlg. top Serpentine.

RIDDLE POOL—BASTROP COUNTY

Floyd Dodson's (and Muckelroy) No. 1 Duran, 45-ac., 300 ft. from NE line, 1,440 ft. from SE line of 100-ac. tract, Flynt Sur. ..... T.D. 2,355 ft; coring.

Marts & Beavens' No. 1-A Riddle, (202-ac.) ..... T.D. 2,310 ft; running csg.

Ogden & Reed's No. 1 Talley, 150 ft. from NW line, 1,350 ft. from SW line of John Maxmillan Sur. ..... T.D. 2,127 ft; treated with 3 drums acid; standing.

Ogden & Reed's No. 1-A C. L. Riddle, 1,225 varas from NE line, 288 varas from NW line of Maxmillian Sur. ..... T.D. 2,276 ft; treated with 6 drums acid; standing.

PETTUS POOL—BEE COUNTY

Mauldin's No. 4 fee, 420 ft. NE of No. 3, ½ mile S from Pettus townsite ..... T.D. 2,500 ft; drlg.

TULETA POOL—BEE COUNTY

Grisham et al's No. 1 Rapp & Hatch, 1,700 ft. from N line, 2,640 ft. from E line, Sec. 12 of Ragsley's Subd. of Uranga grant ..... T.D. 4,393 ft.; P.B. 5 ft.; W.O.C.

ECKERT POOL—BEXAR COUNTY

J. F. Harrison's No. 1 F. Gembler, 150 ft. from NW line, 460 ft. from NE line of 88-ac. tract in J. Montes Sur. ..... T.D. 416 ft; standing in shale.

McDaniel & Wood's No. 1 A. C. Gembler, 150 ft. from N and W lines of 40-ac. tract, Gotari Sur. ..... Moving in.

EAST COLE POOL—DUVAL COUNTY

Cole & Wise's No. 1 S. Benavides, 150 ft. from SW and NW lines of Blk. 415, Myrtle E. Hale Subd. of Mariana Arispe grant ..... T.D. 3,117 ft; dry and abd.

NORTH KOHLER POOL—DUVAL COUNTY

Allen & Morris' No. 1 G. W. Sutherland, 165 ft. from N line, 165 ft. from W line, SW NE of Sur. 188.... Rigging up.

NORTH GOVERNMENT WELLS POOL—DUVAL COUNTY

Central Producers, Inc.'s No. 7 Tuck & Johnson, 330 ft. from S and W lines of SE SW of Sur. No. 42 ..... Rigging up.

Hester Bros.' No. 1 fee, 330 ft. from S and E lines of NE of Sur. No. 47 ..... Rigging up.

Humble O. & R. Co.'s No. 8 Hahl, 2,990 ft. from S line, 330 ft. from W line of E½ of Sur. No. 360.. Spudded in and set surface csg.

Humble O. & R. Co.'s No. 7 Hahl, 2,110 ft. from S line, 330 ft. from W line of E½ of Sur. No. 360 .... T.D. 2,315 ft; comp. 4 bbls. hrly. through ¾-in. choke.

Magnolia Pet. Co.'s No. 1 Hahl-Southland, 1,210 ft. from N line, 150 ft. from W line of No. 61 Sur. .... T.D. 2,286 ft; comp. 15 bbls. hrly. on. ¼-in. choke.

Navarro Oil Co.'s No. 14 Hahl, 2,310 ft. from S line, 330 ft. from E line of W½ of Sur. No. 360 ..... T.D. 2,269 ft; drlg. plugs.

Navarro Oil Co.'s No. 27 Hahl, 660 ft. N of No. 26 in Sur. No. 360 ..... T.D. 2,200 ft; drlg.

Navarro Oil Co.'s No. 20 Hahl, 1,650 ft. from S line, 990 ft. from E line of W½ of Sur. No. 360 ..... T.D. 2,288 ft; swabbing.

C. G. Porter's No. 2 Smith, 330 ft. from S and W lines of NW NE No. 46 Sur. ..... T.D. 2,319 ft; set csg.; W.O.C.

Reynosa Oil Corp.'s No. 1 Duval County Ranch Co., 330 ft. from N and W lines of N½ of SW of Sur. No. 362 ..... T.D. 2,269 ft; W.O.C.

Reynosa Oil Corp.'s No. 7 Hahl, 330 ft. from N and E lines of N½ of NE Sur. No. 42 ..... T.D. 2,306 ft; comp. 30 bbls. hrly. on 9/16-in. choke.

Southwest Drlg. Co.'s No. 11 Wendt, 990 ft. from N and E lines of SW SE Sur. No. 43 ..... T.D. 2,258 ft; comp. 4 bbls. hrly.

Southwest Drlg. Co.'s No. 12 Wendt, 660 ft. N of No. 11, and 660 ft. W of No. 10, in Sur. No. 43.... Spudded in.

Texas Co.'s No. 8 Johnson, 330 ft. from N line, 990 ft. from W line of S½ of NW¼ of Sur. Seago. No. 42 ..... T.D. 2,245 ft; set csg.

SARNOSA POOL—DUVAL COUNTY

L. W. Capps' No. 5-A Duval Ranch Co., 806 ft. from SW line, 330 ft. from SE line of W¼ of Sur. 574.... T.D. 1,750 ft; drlg.

Sarnosa Oil Corp.'s No. 10 Well, 1,546 ft. from NW line, 990 ft. from NE line of Sur. No. 130..... T.D. 2,585 ft; coring sand from 2,581 ft.

Sarnosa Oil Co.'s No. 9 A. Well, 2,154 ft. from NW line, 330 ft. from NE line of No. 130 Sur. ..... Location T.A.

Sun Oil Co.'s No. 5 Cano, 1,141 ft. from NE line, 330 ft. from SE line of E¼ of No. 576 ..... Csg. set on sand.

PETERS POOL—DUVAL COUNTY

R. F. Duggan's No. 1 Sutherland, 1,307 ft. from E line, 4,186 ft. from S line of Sur. No. 187 ..... T.D. 2,581 ft; drlg. in.

SANDIA POOL—JIM WELLS COUNTY

Crude Oil Royalty Co.'s No. 1 Allen, 150 ft. from N and E lines of Blk. 2, Subd. of Wade ranch ..... T.D. 2,648 ft; standing.

NORTH PETTUS POOL—KARNES COUNTY

Gulf Coast Co.'s No. 6 McKinney ..... Begol Oil Co. building derrick and moving in rig.

JACOBS POOL—McMULLEN COUNTY

Longhorn Oil Co.'s No. 2-A C. T. Lark, in E. W. B. Scrugham Sur. ..... T.D. 1,021 ft; recemented csg.

Longhorn Oil Co.'s No. 3-A Lark, 660 ft. S of No. 1-A Lark ..... T.D. 1,033 ft; slopping oil over top of csg.

KING POOL—NUECES COUNTY

John F. Camp's No. 1 King, 150 ft. from N and W lines of E½ of Sec. 29, of Richard King Subd. ..... T.D. 5,330 ft; drlg. hard shale.

GRETA POOL—REFUGIO COUNTY

Heyser & Heard's No. 1 J. M. O'Brien, C 8½, Blk. 5.. Derrick.

Edwin M. Jones' No. 1 J. M. O'Brien, C 8½ of Blk. 4, or 466 ft. from S and W lines of 50-ac. tract.. Set surface csg.

Nesral Oil Co.'s (Pearson) No. 1 Thomas O'Connor, 330 ft. SE of railroad ..... Derrick.

MATHIS POOL—SAN PATRICIO COUNTY

Geo. W. Scruggs' No. 1 Collins ..... T.D. 2,756 ft.; changed to heavier rig.

LAUREL POOL—WEBB COUNTY

Cole & Wise's No. 4 Garcia-Villareal ..... T.D. 2,739 ft; abd.; dry.

Magnolia Pet. Co.'s No. 1 Jose Garcia, 330 ft. from N and W lines of Blk. 9, Sur. No. 1,100 ..... T.D. 2,140 ft; set csg.; W.O.C.

Shankle & Newton's No. 1 E. Benavides, 330 ft. from S and E lines of Blk. 13, in No. 2,373 Sur. ..... T.D. 40 ft; set surface csg.; W.O.C.

South Tex. Oil Co.'s No. 9 Laurel, 334 ft. from N line, 1,121 ft. from W line of Blk. 13 ..... T.D. 2,475 ft; abd.; dry.

E. A. Taegel's No. 2 Garcia-Villareal, 300 ft. from NW line, 810 ft. from SW line of SW SW of Sur. No. 720 ..... T.D. 1,980 ft; drlg.

Arthur H. Wray's No. 1 Laurel, 600 ft. from W line, 150 ft. from S line of Blk. 5, Sur. 270 ..... T.D. 1,100 ft; drlg.

MOCA POOL—WEBB COUNTY

Moca Oil Co.'s No. 4 Duval County Ranch Co., 810 ft. from N line, 130 ft. from W line of Blk. 22, Share 3, Zapata County School Land ..... T.D. 1,214 ft.; P.B. to 891 ft.

S.R.C. et al's No. 2 Duval Co. Ranch Co., 330 ft. W of No. 1, 150 ft. from S line of lease, League No. 3 of Zapata County School Land Sur. ..... T.D. 866 ft; going on pump.

S. R. C. Oil Corp.'s No. 3 Duval County Ranch Co., 1,943 ft. from E line, 150 ft. from S line of Blk. 11, League 3, of Zapata County School Land Sur. .. T.D. 382 ft; bailing.

CHAPMAN POOL—WILLIAMSON COUNTY

Deep Pay Exploration Co.'s No. 1 M. V. Lawrence, 237 ft. from W line, 86 ft. from S line of S. Miller Sur. ..... T.D. 3,056 ft; in Edwards; standing.

ESCOBAS POOL—ZAPATA COUNTY

Texas Co.'s No. 24 Meanles, 2,651 ft. from SE line, 17,884 ft. from SW line of Cerrito Blanco grant.... Rigging up.

MIRANDO VALLEY POOL—ZAPATA COUNTY

J. W. Edwards' No. 1 R. Hinnant, 150 ft. from SE lines of Blk. 8, Sur. No. 116 ..... T.D. 1,800 ft; S.D. for wtr.

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Louisiana-Arkansas Fields

(Continued from Page 43)

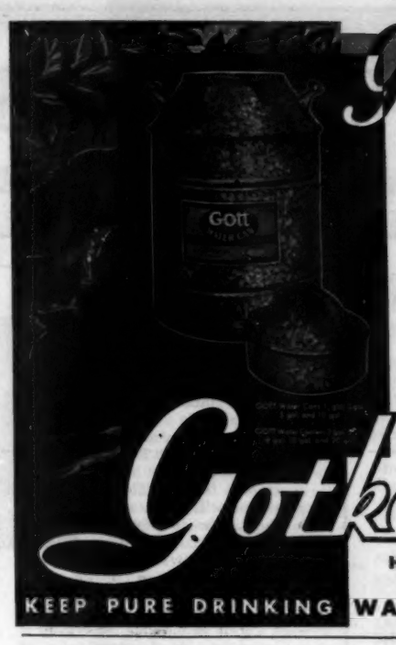
P. A. Sharpe, SW SE Section 3-18-16, Blanchard gas district of Caddo Parish, was dry on drill stem test at 2,680-2,731 feet and was coring ahead. After a month's shutdown, A. C. Thomas and others' No. 1 Johns, NE NE Section 25-15-3w, Jackson Parish, has resumed drilling and was making hole at 1,600 feet. Scheduled to go to 4,200 feet to test a 12,000-acre block, this wildcat also will be rather closely watched as another of the several deep holes to be drilled in North Louisiana during the coming months. There is good geology and while there have been several other holes drilled in that locality during the past several years, none of them has been carried to the depth this one is scheduled to go. Therefore the log after known horizons have been passed will be much in demand.

Following completion of their No. 1 Cramford in the southwest corner of the NW SE Section 20-9-13, Converse area of Sabine Parish, as a 425-bbl. pumper, the best in the field to date, O. G. Golden and others, now carried as DeGeneres, McConnell & Sanderson, have taken out permits for three more wells on the same 40 and have location in the center of the lease for No. 2. The other two will be corner locations.

ARKANSAS-MISSISSIPPI

C. W. Alworth's No. 1 W. D. King, SE SW Section 16-17-20, Columbia County, Arkansas, was drilling shale at 2,050 feet. Paul G. Benedum's No. 1 Hanson, SW NW Section 25-19-24, Lafayette County, spudded but was shut down by high water. George W. Harper's No. 1 Reed-Bodcaw, SW NW Section 16-15-22, Lafayette County, made a test of the Nacatoch at 1,163 feet, got a small show of oil and was coring farther. Claude English has taken over the Tarkington and others' (formerly Molar Oil Co.) No. 1 Gibson, SW NE Section 30-18-27, Miller County, and is shut down at 40 feet where surface casing was set. Sorrell and Tidwell's No. 1 McCowan, NW SE Section 22-15-28, Miller County, was drilling at 2,875 feet, around the depth where the small group of producers in the Texarkana Pool were developed. R. E. Collins and others' No. 1 Craig, NE SE Section 15-10-29, Sevier County, near DeQueen, was drilling hard rock at 1,704 feet. In Union County E. R. Henderson topped the Nacatoch at 2,170 feet on No. 1 Snyder, NE SE Section 2-19-15, Union County, on the fringe of the old El Dorado South Field, and was awaiting orders at 2,610 feet.

Cleve Love and others' No. 1 Childress, NE NE Section 24-5-1e, Rankin County side of the Jackson, Miss., gas field, topped the black shale at 2,376 feet, the chalk at 2,480 feet and was arranging to set 7-inch casing to test. Love Petroleum Co.'s No. 1 Interior Lumber Co., NW NW Section 28-6-2e, Rankin County, cemented 7-inch at 2,936 feet, total depth 2,963 feet. Muse & Muse's No. 1 Carlton, SW SW Section 13-5-1e, Rankin County, topped black shale at 2,307 feet and cemented 6-inch casing on top of the chalk at 2,407 feet. Kistler & Stivers' No. 1 Blake estate, Section 15-17-4, Warren County, was drilling shale and shell at 4,800 feet, one of a half dozen or so Mississippi wildcats that have gone that far recently. Escambia Oil Co.'s No. 1 State Line Lumber Co., NE NW Section 24-1n-10, Escambia County, Alabama, is shut down at 3,296 feet and DeSoto Development Co.'s No. 1 Gardner, Section 22-15-16, Lamar County, Alabama, cemented 6⅝-inch at 3,216 feet, total depth 3,350 feet. Eastman-Gardiner interests' No. 1 Bank of Deming, NW NW Section 26-8-15, Covington County, Mississippi, another deep test, was drilling sand at 4,550 feet. Snow-Block Petroleum Co.'s No. 1 Watson estate, NE SW Section 24-7-13, Jones County, was drilling at 2,250 feet in gumbo. Lamar Oil Co.'s No. 1 Scott, NE NE Section 18-2n-14, Lamar County, tested salt water with a show of gas at 2,631 feet and was drilling sandy shale at 2,640 feet.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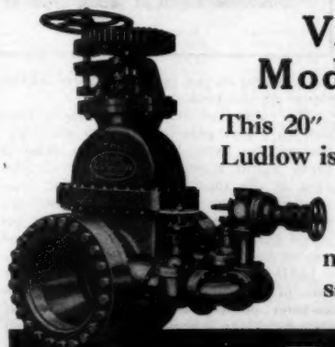

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FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing or transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depth of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimates of cost cannot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

How Oil Losses in the Pipe Lines Are Caused by Evaporation

I am told there is evaporation loss of serious proportions in crude oil transported by pipe line. It is not clear to me how there can be anything more than inconsequential evaporation of the oil when being so transported. If it is a fact that crude oil evaporates in any important degree in a pipe line I wish you would tell me how it comes about.—N. S. E.

Loss of crude oil through evaporation in pipe line systems may be discussed under two heads, losses running in the gathering systems and those in the main line systems.

The evaporation losses at the gathering stations are greater per barrel handled than at any other point in the pipe line system. This is to be expected for the oil when first received from the lease tanks as fresh crude contains more volatile constituents than that crude which has been held in storage or which has been pumped long distances and has passed through several "working tanks." The fresh crude also often contains a small percentage of fixed gases which on coming out of the crude carry with them some of the lighter liquid fractions.

Gathering stations often are located so they collect the oil from the lease tanks by gravity flow supplemented by a vacuum pump located in the station. Thus in actual operation the lease tank is gauged and turned onto the line and if the valve on the tank connection is not closed when the tank is empty air is drawn into the gathering lines. This air circulates with the oil and becomes saturated with gasoline vapors which in turn escape to the atmosphere when discharged into the tanks at the station.

The vacuum held on a gathering system is often between 16 and 20 points and as the complete system is only partly filled with crude, the latter is subjected to a mild form of vacuum distillation. On reaching the pump the vapors, air and oil are thoroughly mixed so when discharged into the gathering tank these vapors not only are lost but also carry away entrained liquid. This is greatly increased during the summer months at which time the temperature of the vapor space in an ordinary steel tank painted dark colors often exceeds 135° F.

The principal source of evaporation losses at main line stations is the filling losses at measuring stations. These losses also occur at gathering stations. The filling losses are caused by the displacement of the air-vapor mixture in a tank by crude oil as the tank is filled, the air-vapor mixture being forced out into the atmosphere.

Main line stations at which the working tanks ride on the line do not suffer the filling losses. The evaporation losses in this setup are more nearly comparable to "breathing" losses in storage tanks, that is, the air-vapor mixture in the vapor space of the tank is expelled during certain periods of the day and the inflow of air from the atmosphere at other times, this movement into and out of the vapor space being caused by atmospheric changes. For example, during the day the increase in temperature causes the vapors to expand and they are forced out into the atmosphere. At night the temperature decreases and the vapors contract, with the result that unsaturated air is drawn into the tank. In addition to atmospheric variations the vapor volumes in the tanks are materially affected by the changes in the vapor pressures of the liquid in the tank.

The theory of evaporation shows that there are four principal factors which influence the rate of evaporation from a given liquid which are as follows: The area of the liquid surface exposed, temperature of the surface of the liquid, removal of unsaturated air over the exposed surface of the liquid and the quantity of the same liquid vapor in the surrounding atmosphere. And in the operation of gathering stations equipped with vacuum pumps there is the additional factor of the vacuum distillation mentioned previously.

Two or More Separators Used to Advantage in Some Instances

I understand some engineers recommend that two gas separators instead of one be used on high-pressure wells, stating that the cost of compression can be greatly lowered in that way. Can you tell me where a saving really can be made in this way, and if there can, how the saving comes about?—T. D. S.

There are many advantages to be gained by the use of two or more oil and gas separators at wells operating at relatively high pressures, as for example in California where wells were produced under a back pressure of 300 pounds. At these wells there were three separators set at first and the gas that was recovered from the first separator working at 300 pounds was used to flow some low pressure wells in the same field.

Under such an arrangement there was a saving in compression charges estimated at 1¾ to 3½ cents per 1,000 feet, with an average of about 2½ cents. These cost estimates are based on electric motor-driven plants with a daily capacity of 80,000,000 feet. For smaller plants electric motor-driven with a daily capacity of 3,000,000 feet the cost is given as 4½ cents per 1,000 feet and 4¾ cents in a plant having a discharge capacity of 1,500,000 feet daily.

The high pressure separators in the instance cited delivered the remaining oil and gas into traps set to work against 140 pounds pressure and the gas from those traps was treated in the absorption plant and its gasoline removed at that pressure. This saved the cost of compressing the gas for the recovery of its gasoline content, but after it had passed through the recovery system it was necessary to compress it to 300 pounds pressure to add to the gas used in flowing wells that was taken from the high pressure trap system. Excess gas was sold at the 300-pound pressure to natural gas gathering systems.

The third set of separators, working at a pressure of 30 pounds, delivered the oil to the lease storage tanks set to release any gas still remaining in the oil at atmospheric pressure. The gas recovered from the 30-pound pressure traps was also passed through the gasoline plant, but it had to be compressed to 140 pounds to pass through this recovery system. After being treated this gas was compressed to 300 pounds for sale and use in flowing wells.

From this description of the system of multiple traps it will be seen that working at relatively high pressures they will deliver gas to lines, wells or gasoline plants without repressuring and there will be a saving of 2½ to 4½ cents per 1,000 feet. The system is also efficient in keeping back pressure on the well to give most efficient operating conditions, and as the working pressure is lowered the trap pressure is reduced. Some wells have reached the intermediate trap pressure stage and therefore flow into the 140-pound traps direct.

Looks as Though He Has Drilled Into a Cavern in Limestone

I want to ask you about a water well that I have and especially I want to know whether the queer noises it makes are a sign that it is in a natural gas area. The well is 56 feet deep. Whenever the water in it rises to within about 14 feet of the surface it makes a noise that can be heard 100 feet away. If I let the bucket down into the well without drawing any water the well begins to act as though air or gas were working up through it. Under certain conditions if I draw out about 10 gallons of water the water in the well will boil as though it were over a hot fire and make a howling noise. These noises and other manifestations are intermittent, and they occur only when the water gets up into the steel casing. Do you think there is natural gas here and is it worth anything? —D. R. B.

The information you provide is too meager to form the basis of a definite opinion concerning the origin of the noises and other manifestations in your water well. However, as your land is in eastern Tennessee it is suspected that you have drilled into a cavern in the limestone and opened up a passage to some outside point through which air is entering and escaping through the well in such a manner as to create a noise and agitate the water.

Working on this theory it is suggested that you try to determine whether air is rushing out of the well when the noise occurs. This can be done by holding a light piece of material such as paper over the mouth of the well and noting whether it is blown upward while the noise is heard.

The fact that the noise is heard only when the water is up in the casing is probably due to the fact that under this condition the air is partly shut off from the well and in breaking into the well it makes the noise.

This is all largely guesswork for you have not told anything about the type of formation into which the well is drilled, or a number of other things which should be known if any opinion of real value is to be formed.

It is believed you can find some open cave that could provide an entrance for air and if you have drilled into an underground cavern the escaping air could produce a noise such as you describe.

Even if there is no limestone in the immediate area in which the well is drilled this does not eliminate the possibility of underground connections with limestone caverns even 2 miles or more away. If you have gas in the well you should certainly be able to detect it. It may not be a gas that will burn, but it is certainly either gas or air. You might get a sample and send it to some laboratory for analysis. It might be something of commercial value but that is simply a guess and is not believed likely you would find gas in commercial quantities.

Channels occur in slate as well as in limestone and it is possible that one of these channels connect with a source of water at some point. As this water rushes into the well it may carry air with it that causes the boiling effect you describe.

Why Was It Called That?

METEORITE

Petroleum geologists and other scientists always have been interested in the stony or metallic bodies, called meteorites, that have fallen to the earth from outer space. The name is taken from the Latin "meteorum." After 30 years' drilling, at a cost of $500,000, the owners of Diablo Canyon crater, in Arizona, think they have found the 10,000,000-ton meteorite that is estimated by geologists to have fallen 50,000 years ago. In 1903 small pieces of the meteorite, picked up in the vicinity of the crater and found to consist of almost solid nickel, iron and platinum, caused the present owners to buy the big hole, which is 2 miles in diameter. After drilling down 1,350 feet, metal was struck which geologists say is a part of the huge meteor.

NATURAL GAS DEVELOPMENTS

Mayor of Denver Receives Gas Offer From Texas Men

DENVER, Colo., July 31.—The Independent Gas and Royalty Owners Association of Amarillo, Tex., has made a tentative offer to the mayor of Denver to construct a pipe line from the Amarillo gas field to Denver and deliver gas at the city limits at 25 cents per 1,000 feet. Will E. Herring is president of the company, J. R. Barnhill, secretary, and L. T. Fisher, counsel. All reside in Amarillo. They say they have 130,000 acres upon which to draw for gas.

The proposal is to amortize the cost of the pipe line over a period of five or six years and then turn it over to the city or lease it for a nominal figure. The offer arose out of an investigation of the natural gas rates in Denver for which the city council has made an appropriation of $5,000. The Public Service Co. of Colorado (Cities Service) is the Denver distributor, and buys the gas at the gate at 40 cents from the Colorado Interstate Gas Co., which pipes it from the Amarillo Field. The Public Service franchise provides for accepting gas from other sources if the rate is cheaper and the wholesale company fails to meet the reduced rate.

14 Gassers in Geneva; New Big Well in Hebron

CORNING, N. Y., July 31.—The Geneva gas field, which was recently opened, has reached a total of 14 wells with a daily production of 65,000,000 feet. The total was boosted when the No. 2 Patrick with an estimated production of 20,000,000 feet had blown.

The Allegany Gas Co. reports a 14,000,000-foot gasser on its No. 2 Carpenter in Hebron Township, Potter County, Pennsylvania. The top of the sand was 4,891 feet and the maximum flow was reached 7 feet in the sand.

Interest has suddenly revived in the Tioga County gas field with the announcement that the Penn United Gas Co. will drill a well on the Wellsboro anticline on the John Locen property in Charleston Township, between Charleston and East Charleston, Tioga County, Pennsylvania.

The Lycoming Gas Corp. has an interest in this new operation. Penn United holds a good sized acreage surrounding the location, while the Lycoming, Cities Service and the North Branch Development Co. are said to control the larger part of the remaining leased acreage on this part of the Wellsboro anticline.

Lower Gas Rates Granted to Seven Oklahoma Towns

OKLAHOMA CITY, Okla., July 31.—Seven towns, Mangum, Altus, Granite, Sayre, Martha, Blair and Willow, on the Sayre-Altus transmission line of the Consolidated Gas Service Co., have received a substantial reduction in rates charged them for gas at the city gates.

The Oklahoma Corporation Commission ordered a reduction from 25 cents to 18 cents per thousand feet for the first 100,000 feet for each town. The commission also ordered that utilities companies of Oklahoma absorb the 1 per cent sales tax and may not pass it on to consumers. The ruling means a saving to Oklahoma consumers of approximately $450,000 annually, Paul Reed, auditor for the corporation commission, said.

Northeast Louisiana Gas Fields Yielded 194,056,194,000 Feet Up to 1932

MONROE, La., July 31.—A total of 1,301,944,364 feet of natural gas was produced and withdrawn from wells in the Monroe, La., gas field from its discovery in 1916 to December 31, 1931, and at the close of 1931 there were 833 wells capable of producing natural gas in the Monroe Field with total open flow capacity of 4,525,728,000 feet, according to records of the Louisiana Department of Conservation, Minerals Division.

The Richland Parish, Louisiana's second largest natural gas field, first produced natural gas in 1926 and from then to December 31, 1931, produced 230,393,474,000 feet from its 256 wells capable of producing gas, which at the end of 1931 had a total open flow of 4,847,083,000 feet.

At the close of 1931 the producing wells in the Monroe Field, Richland Field, East and West Carroll Fields, commonly known as the Northeast Louisiana gas field, numbered 1,094, capable of producing natural gas and divided by individual fields, as follows:

Field:	Open flow cap'ty, 1931	No. of prod'g wells	Gas produced in year 1931 (cu. ft.)
Monroe	4,525,728,000	833	103,026,573,000
Richland	4,847,083,000	256	90,727,737,000
W. Carroll	18,826,000	1	104,759,000
E. Carroll	80,014,000	3	197,125,000
Concordia	28,182,000	1	.....
Totals	9,499,833,000	1,094	194,056,194,000

The above production of natural gas in Northeast Louisiana, much of which went into large pipe lines leading from these fields to supply St. Louis, Mo., Atlanta, Ga., Memphis, Tenn., New Orleans, La., and other principal points, was distributed and utilized as follows:

	Cubic feet
Gas burned into carbon black	51,922,794,000
Gas put into pipe lines	134,993,475,000
Gas used in drilling rigs, domestic and gaso. plant fuel	2,110,354,000
Gas unaccounted for, pipe line loss, etc.	5,119,571,000
Total gas consumed, 1931	194,056,194,000

During 1931 54 wells capable of producing natural gas were completed in the Northeast Louisiana gas field as follows: Monroe Field, 14; Richland Field, 39; Concordia Field, 1.

Carbon black first was manufactured in the Monroe gas field in 1918 by plants removed from the West Virginia gas fields, but no production records for that year are available. However from 1919 to the end of 1931, 1,149,224,490 pounds was manufactured from 988,130,464,000 feet of natural gas. In 1919 14,024,606 pounds of carbon black was manufactured in the Monroe gas field and its production continued to increase through 1924, when 144,601,550 pounds was manufactured. The production of carbon black in Louisiana from 1919 to the close of 1931 by years, as well as gas consumed therein for the same period, follows:

Year of production	Pounds of carbon black manufact'd	Cubic feet of natural gas used
1919	14,024,606	21,200,000,000
1920	18,565,493	31,000,000,000
1921	31,003,615	52,072,000,000
1922	41,966,856	58,704,000,000
1923	101,398,881	82,974,000,000
1924	144,601,550	127,812,000,000
1925	130,161,585	118,869,000,000
1926	129,564,840	108,145,251,000
1927	126,563,477	99,282,477,000
1928	137,314,120	99,700,121,000
*1929	137,800,887	102,747,769,000
*1930	98,434,773	85,392,238,000
*1931	47,773,802	50,931,608,000
Total	1,149,224,490	988,130,464,000

*In 1929 the first plants were put to producing carbon black in the Richland gas field. Figures given for 1930 and 1931 do not include low quality of gray carbon black but previous years do.

The Louisiana Department of Conservation issued 1,824 drilling permits for wells in the Northeast Louisiana gas field, made up as follows:

Monroe Field—		
Morehouse Parish	317	
Ouachita Parish	593	
Union Parish	303	1,213
Richland Field—		
Richland Parish		447
East Carroll Parish		19
West Carroll Parish		12
Concordia Parish		11
Catahoula Parish		37
Caldwell Parish		49
Franklin Parish		32
Lincoln Parish		44
Total, 1926-1931		1,824

Rumania's Gas Production Shows Decrease From 1931

During 1932 Rumania produced 2,219,510,000 cubic meters of natural gas, about 6 per cent less than in 1931, owing to more careful handling. The country has 26 plants for removing gasoline from natural gas, 13 of them being in the Moreni Field. Gasoline recovered varied from 57 kilos per 1,000 cubic meters at Moreni to 280 kilos at Ochiuri, the average being 90 kilos.

The use of natural gas for domestic purposes is a new development in Rumania and has not reached large proportions. Primarily it has been handicapped by lack of capital for pipe lines and by uncertainty about supply.

CANADIAN GAS ASSOCIATION

CHATHAM, Ontario, July 29.—The annual convention of the Canadian Gas Association for 1933 will be held at Ottawa on September 18 and 19. Visiting British and French gas engineers will meet with the Canadian delegates for the first time.

New Gas Field Likely to Be Opened Near Hornell

HORNELL, N. Y., July 31.—Indications that a new field may be opened up to commercial production of natural gas was revealed when the Gas States Corp. of New Jersey struck a daily flow of 200,000 feet on the Jacob Magin farm in South Dansville.

The company recently obtained leases on 12,000 acres in the vicinity of the Magin test well. The development is 50 miles west of the productive Wayne Field and about the same distance northwest of the Wellsville and Bolivar gas and oil regions. The flow was struck as the drill began to penetrate the cap rock over the Oriskany sand, the gas-producing strata.

CHATHAM WANTS LOWER RATES

CHATHAM, Ontario, July 29.—Negotiations are in progress between officials of the city of Chatham and the Union Gas Co. with a view to securing a downward revision of the gas rates in that city.

Texas Desires Gas Case Returned to State Court

AUSTIN, Tex., July 29.—Attorney General James V. Allred's department took court action here this week to return to state courts jurisdiction in a controversy involving legality of the Texas Railroad Commission's gas rate orders for the city of Laredo.

On motion of First Attorney General Elbert Hooper, District Judge C. A. Wheeler granted a stay of proceedings against the railroad commission, in which the United Gas Public Service Co. was seeking to prevent enforcement of Laredo gas rate orders of the commission.

The gas company had secured a temporary injunction in Federal Court, and hearing had been set for July 31 in Houston on continuing the injunction.

Mr. Hooper announced the new proceeding was under Section 266 of the U. S. Judicial Code, which gives state courts the right to try to determine attacks on the constitutionality of state laws and of orders entered by administrative bodies under such laws.

The Texas Railroad Commission repeatedly has been checked in its efforts to administer oil proration and gas utility orders by injunction suits in Federal Courts.

Temporary Rate Schedule Fixed for Chatham, Ont.

CHATHAM, Ontario, July 31.—Following ineffective negotiations between the city of Chatham and the Union Gas Co. for a new gas rate schedule, G. F. Henderson, natural gas referee for Ontario, has fixed a temporary rate schedule for Chatham, effective August 1 and to continue till a permanent rate is fixed by agreement or otherwise.

The interim rate is: First 200 feet, 40 cents per 100; next 4,800 feet, 7 cents per 100; next 5,000 feet, 65 cents per 1,000; next 5,000 feet, 60 cents per 1,000; next 5,000 feet, 55 cents per 1,000; over 20,000 feet, 50 cents per 1,000.

The old rate was: For winter months, first 10,000 feet, 50 cents per 1,000; next 10,000 feet, 55 cents per 1,000; all over 20,000 feet, 65 cents per 1,000; with a summer rate of 75 cents per 1,000 feet for all gas. Meter rent was 20 cents per month.

The city of Chatham is appealing from the new rate to the Ontario government.

CANADIAN GAS PRODUCTION

CHATHAM, Ontario, July 29.—Official figures issued from Ottawa show that the natural gas production from all Canadian fields in May, 1933, totaled 1,689,071,000 feet. This was a decline of 24 per cent from the April total of 2,222,556,000 feet and 4 per cent from the May, 1932, total of 1,760,161,000 feet.

Imports of mixed (natural and artificial) gas in May amounted to 7,947,000 feet valued at $6,165 compared with 6,842,000 feet valued at $5,180 imported in April.

ONTARIO GAS DEVELOPMENT

CHATHAM, Ontario, July 31.—Continental Gas Corp. of Toronto is reported negotiating for a share interest in producing gas properties in Walpole Township, Haldimand County, in addition to its present holdings in that area. Plans are also being made for an immediate start on a continuous drilling program in the Binbrook gas area in Wentworth County.

PERSONAL PARAGRAPHS

Oscar R. Howard was recently re-elected to the board of directors of the Gilmore Oil Company.

* * *

E. O. Markham, geologist for the Carter Oil Company, Tulsa, is on a vacation at his old home in Missouri.

* * *

L. S. McGhee, field land man for the Carter Oil Company, has been transferred to the Tulsa office from Oklahoma City, Okla.

* * *

J. C. Axelson, of the Axelson Manufacturing Company, has returned to California following an absence of a month spent in the East.

* * *

John Lauder, vice president and treasurer of the Shell Oil Company of California, has retired after 30 years of service with the Shell interests.

* * *

Fred Frasted, Jr., formerly geologist for the Stanolind Oil & Gas Company, in its Shawnee, Okla., office, has been transferred to Casper, Wyo.

* * *

H. O. Wells, Mid-Continent representative of the Patterson-Sargent Company, Tulsa, left on a business trip of several weeks in Colorado and Wyoming.

* * *

George H. Jacques, of Tulsa, vice president of the Stanolind Oil & Gas Company, was in Wyoming recently in connection with his company's interests in oil fields of that State.

* * *

J. M. Charlton, in charge of the San Antonio, Tex., office for the California Company, motored to Chicago to attend the Century of Progress Exposition, accompanied by his family.

* * *

D. Mills Hammett, manager of the Mid-Continent division of the Axelson Manufacturing Company, is in Morningside Hospital, Tulsa, recovering from an emergency operation for appendicitis.

* * *

E. A. Callanan, vice president and manager of the foreign division of Standard Oil Company of New York, arrived in Los Angeles, Calif., from Australia, where he had been for several months.

* * *

Lloyd Noble, president of the Noble Drilling Company, Tulsa, has returned from a trip to Casper, Wyo., where the company is doing some work. He made the trip by private airplane and was accompanied by Mrs. Noble.

* * *

Senator Edward Michener, R. J. Hutchings and S. A. Annand of Calgary, Alberta, representing Commonwealth Petroleums, Ltd., visited the Cut Bank Field in Montana recently in connection with the completion of the Commonwealth-Fulton wildcat.

* * *

George R. Elliott, formerly on the engineering staff of the Turner Valley Gas Conservation Board, Canada, has opened an office in Black Diamond, Alberta. Mr. Elliott will engage in petroleum engineering work, specializing in the microscopic examination and correlation of samples.

* * *

G. W. Holland, solicitor for the Department of the Interior; R. C. Patterson, supervisor of oil and gas leasing of the department, and Nathan P. Margold, solicitor of the department, arrived in Los Angeles, Calif., recently to join operators in the formation of a unit plan of operation for the Kettleman Middle Dome Field.

* * *

Dr. Gustav Egloff, of the Universal Oil Products Company, last week attended the World Petroleum Congress in London, England. Doctor Egloff and associates presented three papers at the conference dealing with developments in research of special interest to refiners. Doctor Egloff visited points in Germany and other European countries previous to the start of the conference.

Frank R. Clark, Tulsa, chief geologist for the Mid-Kansas Oil & Gas Company, is away on his vacation.

* * *

W. H. Correa, vice president of the Vacuum Oil Company, Inc., sailed from New York for Europe last week.

* * *

W. H. Hoffman, of the Texas Oil Company, New York, accompanied by Mrs. Hoffman and their son, sailed from New York last week for Europe.

* * *

E. E. Overton, bulk sales manager of Shell Eastern Petroleum Products, Inc., is in the Carolinas on business. He will remain there about two weeks.

* * *

William Simpson, superintendent of production for the California Company, Midland, Tex., has returned from a trip to Chicago where he visited the Century of Progress Exposition.

Men of the Industry

H. C. GEORGE

H. C. George, who took charge of the School of Petroleum Engineering of the University of Oklahoma when it was established in 1924 and who was director of the school from that time on, resigned August 1 to become head of the department of oil and gas in the University of Pittsburgh, Pittsburgh, Pa.

Immediately preceding the beginning of his service with the University of Oklahoma, Professor George was engaged in work for the U. S. Bureau of Mines in the Ardmore, Okla., oil fields. He is a graduate of Pennsylvania State College and the University of Pittsburgh. Beginning as a tool-dresser in 1896 for the Crew-Levick Company, he has followed oil field investigations since that time. He served as chief engineer for the Wisconsin Zinc Company, as petroleum engineer in the Bureau of Mines, made a survey of the coal resources of Alaska and did petroleum research work in Oklahoma.

In the field of educational work Professor George was head of the department of mines in the University of Pittsburgh for three years and was professor of metallurgy in the Wisconsin Mining School one year. He has been active in the American Institute of Mining and Metallurgical Engineers and the American Association of Petroleum Geologists.

Fred J. Cameron and son, Jimmie, of Turner Valley, Alberta, are visiting relatives in Petrolia, Ontario.

* * *

G. C. Phillips, scout for the California Company, has been transferred from Corpus Christi to San Antonio, Tex.

* * *

S. F. Bowlby, petroleum engineer, for the Shell Petroleum Corporation, has been transferred from the San Angelo, Tex., district to El Camp, Tex.

* * *

James F. Nisbet and I. O. Miller, drillers, of Petrolia, Ontario, have completed a water well contract for the municipality of Almonte, Ontario.

* * *

Commander A. A. Baker, supervisor of the U. S. petroleum naval reserves and shale oil reserves in Utah, Colorado and Wyoming, spent his vacation in California.

* * *

Campbell Osborn, attorney, has left Tulsa for a four weeks' vacation on the Little River in southeastern Oklahoma, where the fish are reported plentiful and not a telephone within 30 miles.

* * *

R. S. Hyer, Tulsa, engineer representing the Sperry-Sun Surveying Company, of Philadelphia, Pa., after spending a week in Wyoming oil fields, left for the new Cut Bank Field in Montana.

* * *

R. H. Morrison, in charge of the Texas-New Mexico division for the California Company, Dallas, Tex., has returned from a trip to California. Mrs. Morrison is spending the summer in California.

* * *

Jack Viets, scout for the Sun Oil Company, has been transferred from Wichita Falls, Tex., where he formerly covered the Panhandle and Wichita Falls districts, to Beeville, in the South Texas district.

* * *

William C. Wolf has been made vice president of the Reading Iron Company, Philadelphia, Pa. Mr. Wolf resigned as general manager of the Highland Iron & Steel Company of Chicago to accept this position.

* * *

Allan J. Childerhose, formerly of the Geological Survey of Canada and at one time stationed in Calgary, Alberta, is working for the Texas Company in the Cut Bank Field, Montana, with headquarters in Cut Bank.

* * *

E. Bosisio, president of Societa Italiani, Italian subsidiary of the Standard Oil Company (New Jersey), has been visiting the New York headquarters of the company during the past fortnight, sailing for Italy last Saturday.

* * *

George T. Horton, president of the Chicago Bridge & Iron Works, flew to Tulsa recently with C. L. Day and D. A. Larson. There they picked up John Wiggins and Don Leach to inspect a newly developed gas conservation system at the McPherson, Kans., plant of the Globe Oil & Refining Company.

* * *

R. F. Schroeder, assistant company manager; Selwyn Eddy, sales executive; E. H. Sanders, advertising director; Henry Stevens, assistant advertising director, and John A. Macready, head of the aviation division, arrived in Los Angeles, Calif., last week as representatives of the Shell Oil Company to attend the company's sales campaign.

* * *

W. L. Connelly and O. E. Dougherty, of Tulsa recently made an inspection trip of Sinclair Prairie Oil Company properties in northern Wyoming and Montana. Mr. Connelly went on to California where Mrs. Connelly is recuperating from a long illness. Mr. Connelly is chairman of the board of the Sinclair Prairie, and Mr. Dougherty is division superintendent.

TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the questions is considered to be confidential.

Questions requiring a dicussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Diseases of the Skin as Related to Petroleum Refining

I am interested to learn if petroleum oils are liable to affect the skin of refinery workers? Is it not generally recognized that any diseases of the skin among refinery workers are in the first place due to other causes than the oil? What are the usual protective measures?—F.B.

There are several forms of skin disease which have been traced to conditions of employment, but the petroleum refining industry cannot be considered so dangerous in this respect as others, such as those handling paint, alkalies and where workmen are exposed to products produced in some forms of electroplating, especially chromium.

Wax distillate, lubricating oils and wax are known to aggravate some skin troubles, when the workmen are careless about keeping their hands and bodies clean or wear exceptionally soiled clothing. If due care is exercised to keep the skin clean as where the practice of bathing when going off duty is a daily habit, the skin infections do not develop.

Dr. H. Haldin Davis spoke before the Society of Chemical Industry, London, May 26, 1933, on the prevention of industrial skin diseases. He said that supervision of the conditions and careful inspection of the workmen were important and when a workman was found showing symptoms of skin infection that he should be at once removed from the area which may have caused it.

Cleanliness is always to be encouraged, except when dermatities is recognized. Application of an ointment is recommended, the ointment containing

Zinc oxide	2 drams
Starch	2 drams
Vaseline	one-half ounce

This ointment should be applied to any scratch or slight abrasion of the skin.

When handling material that is difficult to remove from the skin, special solvents are desirable. A wash for this purpose may be prepared containing

	Grams
Calcium hypochlorite, po.	175
Sodium bicorte, cryst.	359
Boracic acid, po.	35
Water enough to make	30 oz.

For use dilute with 10 volumes of water. Use to be followed by thorough rinsing with soap and water.

Formation of Gum Is Often a Polymerization Process

The question has been raised concerning the formation of gum in gasoline, or petroleum products in general, as being an oxidation process. Is this always true?—F. M. D.

There are two types of gum now generally recognized, known as preformed and potential gum. The preformed gum is the residue that is obtained when certain gasolines are quickly evaporated.

Potential gum is formed under storage conditions, usually with the aid of oxygen but often without oxidation.

The gum formed in gasoline is the result of either oxidation or polymerization. A brief explanation of the meaning of polymerization will make this clear. A polymer is a compound containing the same percentage composition but with a molecular weight that is some multiple of a simpler compound. An example is formaldehyde HCHO, and paraformaldehyde $(HCHO)_3$. The relation is similar to the unit produced by placing the right and left hands together, or placing several bricks on top of each other to form a symmetrical column.

There are several conditions under which polymerization may take place, the important ones being:

1. On standing, either in the light or dark, at normal temperatures.
2. By heating, with or without pressure.
3. Action of chemicals.
4. Influence of catalysts.
5. Absorption of certain elements, such as hydrogen and nitrogen.
6. Electrical dicharge.

It will be observed that oxygen is not required in any of these; in fact, investigations, upon which these statements are based, have in many instances been made with the material in a sealed vessel. It is well known that gum is formed very often in a gasoline too rapidly to be explained as due to the entrance of oxygen. The gum will form in a tightly stoppered bottle or in a closed tank. The formation of gum is frequently accompanied by the development of color.

These are the best known conditions for gum formation, in addition to oxidation.

Standard Method For Knock Test Is by Motor Method

I should like some definite information concerning the new method of testing gasoline for antiknock value. When 60 octane is reported "by the Research Method," does it mean the new method established by the Waukesha people? What does C. F. R. mean? How much difference is there between the new and old method? I am informed there is a difference of from three to nine points.—E. M. G.

The initials C.F.R. mean Co-operative Fuel Research Committee, which is composed of representatives of the American Petroleum Institute, National Automobile Chamber of Commerce, Society of Automotive Engineers and U. S. Bureau of Standards.

The standard commercial method for making a knock test of a motor fuel is the Tentative Standard Method D357-33T of the American Society for Testing Materials. This is the same as the C.F.R. motor method, where the temperature of the mixture is 300° F. and the speed 900 r.p.m. The former C.F.R. method, using a mixture temperature of 212° F. and a motor speed of 600 r.p.m. is known as the research method, and will continue to be the standard test to be used for research purposes.

For a further explanation and details see this page of The Oil and Gas Journal, June 22, 1933, page 129, and the references mentioned there. Both methods use the motor built by the Waukesha Motor Co.

The research method gives octane rating that may run from zero to 10 octane numbers higher than the motor method, depending upon the type of the fuel. The normal difference is 3 to 5 per cent.

Fundamental Principles For the Manufacture of Grease

I would like to get information on making greases, such as axle grease and cup grease. Any directions and the materials to be used will be of value.—W. C. H.

The first greases appear to have been simple mixtures of soaps and oils; the original oils being of animal and vegetable origin. The first mixtures making use of petroleum oils were those in which a heavy crude oil was blended with rosin oil while being heated and stirred by hand; to the hot mixture milk of lime was added until the mass began to thicken. This was poured into suitable containers to cool.

Grease was made for many years without making use of systematic physics and chemistry, but in recent years grease making has become a highly specialized art, making use of technical skill and chemical inspection in the selection of raw materials and the control of the manufacturing process.

Carts of very early times made use of the original axle grease, but modern conditions, requiring comfort and speed, have created a demand for greases of exceptional quality, the largest quantities of this kind of lubricant being required for the lubrication of automobiles, railroad equipment, and industrial machinery. It is often necessary for a grease to meet both quality and use specifications, including chemical composition and physical condition; such as color, texture, consistency, stability, specific gravity and other properties.

The literature covering the details of grease making is not extensive, the first grease makers carefully guarding the nature of the materials and the methods employed. An excellent and reliable book on the subject "Lubricating Greases" has been written by E. N. Klemgard, and the example given here is from this book.

Greases may be classified as to use, and chemical base; for example, cup, transmission, gear, and pressure, roll and journal greases, or soda, lime, lead, zinc, sulphur and aluminum base greases.

The equipment for grease making need not be extensive but will have to be adapted to the varieties to be made. The simplest kettles are the open type heated with steam; a closed steam heated kettle arranged for pressure is required for making some grease, and if a cooked grease is to be made a fire heated kettle is required. The Dopp kettles are satisfactory; the type having paddles which rotate in opposite directions is well adapted to grease making, the smaller inside paddles move at twice the speed of the outside sweep. This kettle is jacketed to withstand a pressure of 150 pounds per square inch.

Klemgard gives a complete description of the preparation of a cup grease in an open steam-heated kettle. An outline of the process will serve as indicating the principles of grease manufacture.

The formula, for a 25-bbl. batch, is:

FORMULA FOR CUP GREASE

Lard oil, Ex. No. 1, gal.	150
Tallow, lbs.	300
Hydrated lime, lbs.	198
Lub oil (vis. 180 @ 100° F.), gal.	900
Water, gal.	75
Nitrobenzene (for odor), lbs.	6

The quality of the material is required to be such as to meet these specifications: Lubricating oil, gravity A.P.I. 19 to 21.5; lard oil, not over 7 per cent free fatty acids (oleic); tallow, clear and free from dirt; minimum melting point 110° F.; free fatty acids 5 per cent; lime, finely powdered, containing 66.6 per cent available calcium oxide.

Process: Place 50 gallons of the lubricating oil, the lard oil and tallow in the kettle. Mix in a separate vessel, in the order mentioned: Hydrated lime, 198 pounds; lub oil, 30 gallons, and water 75 gallons, then add to the kettle. Start the paddles, then turn on the steam and bring the temperature to 300° F. in from two to four hours. Stop the paddles and let stand with the steam on for 12 hours. This is the lime soap base and should be tested by chemical analysis and if necessary, correction should be made by the addition of caustic or tallow.

Next, enough lubricating oil is added to make the volume in the kettle 400 gallons and bring the temperature to 212° F. Add more oil to make the total quantity of oil used 750 gallons. Scrape down the sides, add slowly 4 to 10 gallons of water to reduce the temperature to about 185° F. Stir 10 minutes, then add the nitrobenzene; and the rest of the lubricating oil; stir for 15 minutes. Fill cans at temperature to give free flow.

This grease is of medium consistency, known as No. 3 with melting point 190° to 195° F., consistency 180 at 77° F., by A.S.T.M. penetrometer.

The articles listed have appeared in The Oil and Gas Journal as shown:

Simpson and Wilch — Manufacture of Grease, March 12, 1931, page 38.

Lincoln and Showell — Grease Plant, March 24, 1932, page 26.

Bridgeman—Heavy Gears Lubrication, November 17, 1932, page 50.

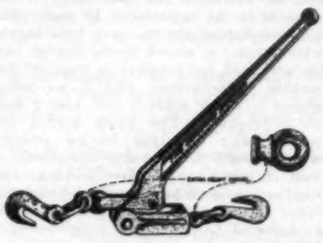
Wolf and Mougey—Performance of Extreme Pressure Lubricants, November 17, 1932, page 58.

NEW AND IMPROVED EQUIPMENT

Diamond Steel Boomer Is Designed to Stand Abuse

Diamond steel boomers, distributed by the Nolan Sales Corp., Tulsa, are equipped with extra-heavy swivels and are designed to stand up under severe abuse.

This new load binder incorporates a locking device whereby the binder cannot become loose after the load is boomed down. This lock is accomplished by inserting a pin through clevis and lever when the binder is in closed position, making it impossible for it to become open until the pin is removed.



The heavy weight diamond boomer is especially designed for heavy oil-field duty. Hooks are extra heavy and fit chains up to and including five-eighths inch. Trunions 1 inch diameter; links five-eighths inch diameter; tongue pin five-eighths inch diameter; length of lever 28 inches; weight 40 pounds per pair.

Complete Stock of Murex Electrodes Now in Tulsa

To assure prompt delivery to producers, refiners and manufacturers of petroleum equipment in Oklahoma and nearby territory, Metal & Thermit Corp. now maintains a complete stock of Murex welding electrodes in Tulsa. The warehouse is in charge of Joe Hodges, at 802-12 East Archer Street. A Murex representative may be reached either through the warehouse or through the Chicago office of the Metal & Thermit Corp., 7300 South Chicago Avenue.

Murex electrodes are made 18 inches and 24 inches long in types and sizes suitable for a wide range of horizontal, vertical and overhead welding operations. An outstanding feature is the patented spiral winding of asbestos yarn which prevents wandering of the arc and serves to hold the heavy mineral flux to the core so that it is not injured if the electrode is bent. The manufacturers point out that the all-mineral ingredients of the flux on a Murex electrode cause it to burn without objectionable fumes or smoke, while the thickness of the coating enables the operator to ride the electrode on the work, thus letting the flux coating space the arc.

Murex electrodes are provided for welding commercial mild steel and boiler plate, manganenes steel, and heat and corrosion resisting alloys. Recent additions to the line include the "Universal" electrode, for vertical and overhead work, which gives deposits of exceptional strength and ductility. There are the new special electrodes for welding Cromansil steel and for steels containing 4 to 6 per cent chromium with some molybdenum.

The Industrial Chemical Sales Co., Inc., 230 Park Avenue, New York, manufacturer of Nuchar activated carbons, has opened a branch office at 370 West Broad Street, Columbus, Ohio. Richard N. Statham, formerly assistant manager of the Chicago office, is in charge.

Notes About Trade Literature

The Fremont Valve Works, Oklahoma City, Okla., has ready for those who request it a folder describing the Fremont valves for high and low pressures.

—

The current number of Oxy-Acetylene Tips, published by the Linde Air Products, 205 East Forty-second Street, New York, contains among its interesting articles one on "Sidetracking Economically," in which the value of hard-faced drilling tools are urged.

—

The Johnston Manufacturing Co., 2825 East Hennepin Avenue, Minneapolis, Minn., has issued a new bulletin, No. 1,020, showing a line of automatic controllers which control oil burners by balancing burner delivery against the heat demands of the furnace or oven.

—

The current number of the Bridgeport Bulletin, published by the Bridgeport Machine Co., Wichita, Kans., announces that the company has compiled and will send on request the oil and gas laws of Kansas, including those enacted by the last legislature.

—

The Keystone Driller Co., Beaver Falls, Pa., has for distribution a bulletin describing the new Keystone 71 spudder.

—

A souvenir book of the Link-Belt Co.'s exhibit at the Century of Progress, Chicago, has been prepared for distribution. Its 48 pages give a history of the company and a description of its products.

The new Tag Dial-indicating thermometer with Bakelite case, is described in a bulletin obtainable by addressing the C. J. Tagliabue Manufacturing Co., Park and Nostrand Avenues, Brooklyn, N. Y.

—

A 12-page booklet concerning the activities of the Condenser Service & Engineering Co., Inc., 310 Twelfth Street, Hoboken, N. J., and describing its products and those of the Instrument Service Co., Inc., and the Blackburn-Smith Manufacturing Co., Inc., New York, affiliated companies, has been prepared for distribution by the first named company.

—

A 16-page booklet discussing the metric gravitometer may be obtained by addressing the American Meter Co., 105 West Fortieth Street, New York. This device automatically corrects for both variations in temperature and in atmospheric pressures.

—

The General Electric Co., Schenectady, N. Y., is mailing loose-leaf bulletins on its G-E fractional horsepower gear-motors and its automatic timer.

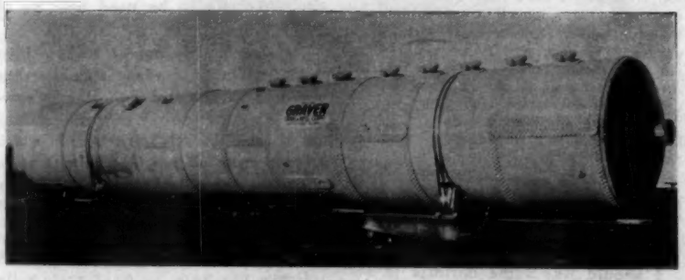
—

The Taylor Forge & Pipe Works, Chicago, has prepared a bulletin describing and illustrating its steel fittings for light well piping and Taylor spiral pipe.

—

Long-hour-duty split-phase motors are described in a six-page bulletin issued by the Wagner Electric Corp., 6389 Plymouth Avenue, St. Louis, Mo.

Shipping Big Cracking Tower Demands Close Figuring



The Graver Tank & Manufacturing Corp., East Chicago, Ind., recently shipped by rail to the Globe Oil & Refinery Co., Lemont, Ill., what was described on the bill of lading as "one plate iron tank U. S. standard gauge No. 2 and thicker," but the weight was given as 232,400 pounds, handled on a triple load with a notation to the effect that the shipment was to be handled carefully on account of special clearances. The thing described as "one plate iron tank" was, according to the manufacturers, the largest shop-assembled riveted cracking tower ever built.

With a nominal shell diameter of 12 feet inside and 80 feet in length, the actual overall diameter over a double row of manheads and hinges was in the neighborhood of 13 feet 10 inches, so that not only was the problem of fabricating this unit an interesting one, but it developed that the problem of handling it out of the plant and to the customer's plant in Lemont was of even greater complexity The situation was made difficult through the fact that there were only a limited number of cars in the country capable of handling these excessively heavy loads in combination with minimum vertical clearances and the necessity of spreading the load on three cars injected the problem of taking care of the offset of weight in getting around curves. Large steel plate saddles, weighing over 18 tons, were set on large bearing plates with center pins and these in turn were permanently mounted on the car frame at the proper points to meet the railroad's loading rules regarding distribution of weight.

The tower itself contained 14 steel bubble decks and one trap-off deck, together with a large heat exchanger in the chamber at one end. A sidelight on the difficulties involved in transporting this unit is contained in the report that all of the brasses and springs on the cars used were broken and the railroad's calculations were so close that the clearance on one of the bridges en route was less than three-eighths of an inch.

Lufkin Aristocrat Rule Used for General Work

"Aristocrat" No. 186, tape-rule just put out by the Lufkin Rule Co., Saginaw, Mich., should find a wide market because it is a practical 6-foot measure for general work, yet weighs only 2 ounces and has a case only 1⅝ inches in diameter, making a handy pocket measure.

The steel line, stiffened by special

forming, can be projected unsupported, like a rule, to walls or into openings, yet will also flex around and accurately measure circles, etc. It is manually operated. No. 186 is graduated 72 inches to sixteenths. No. 186D carries in addition engineers' measurements, i.e., feet, tenths and hundredths of feet.

The case is of stainless steel, smoothly formed. Both sides have embossed design with background in black enamel. The individual box is attractive, in black and silver.

Caterpillar Has Complete Line of Oil Field Tractors

Oil field servicing winches are available for four models of the line of track-type tractors for oil field hauling use developed by the Caterpillar Tractor Co., Peoria, Ill. There are eight different sizes, from 15 drawbar horsepower to 75 drawbar horsepower, including two models powered with the Caterpillar Diesel engine. The model 35 tractor oil field servicing winch unit is the size regarded as most adaptable for such conditions as those in East Texas.

Track-type tractor winch units are dual purpose ones, since the unit can be used as a drawbar unit for moving equipment and materials at times when the unit is not used for servicing wells.

The winch on the Model 35 tractor is equipped with a free-rolling, full-release drum, with drum flange 32 inches in diameter by 7 inches wide and drum barrel 13 inches in diameter by 42 inches long. The drum has a cable capacity of 6,000 feet of five-eighths inch line, or 4,200 feet of three-fourths inch line. The length of cable in one wrap on the drum barrel is 250 feet of five-eighths inch line and 213 feet of three-fourths inch line. The winch unit is equipped with four speeds and reverse.

On a job in Texas, the Model 35 tractor winch unit pulled a well containing 3,745 feet of five-eighths inch rod and 2½-inch upset tubing. The entire string was full of salt water. The rods were "tailed out" and laid down in fourbles; tubing stood in fourbles. Rods were handled on a single line. The tubing was started with three lines strung up. After 6 fourbles had been pulled the third line was tied down and the rest of the tubing was pulled, and the entire string run, on two lines.

Pulling the rods consumed 24½ minutes, which included unhooking from beam, setting back beam and removing polish-rod and stuffing-box. Pulling the tubing consumed 1 hour and 50 minutes. No time was deducted for removing nipple, tying out third line, etc. The tubing was run in 1 hour and 24 minutes. Tubing catcher was used. The rods were run in 33 minutes, which included setting the stuffing-box and hooking up pitman and beam ready to pump. The total time required was 4 hours and 11½ minutes.

Bureau of Mines Statistics for the Month of May, 1933

SUPPLY AND DEMAND OF ALL OILS

(Including wax, coke and asphalt in thousands of barrels of 42 U. S. gallons)

NEW SUPPLY:	May, 1933	April, 1933	May, 1932	Jan.-May, 1933	Jan.-May, 1932
Domestic production:					
Crude petroleum	84,747	65,313	68,522	350,389	332,797
Daily average	2,734	2,177	2,210	2,320	2,189
Natural gasoline	2,776	2,674	3,079	13,640	15,869
Benzol*	105	89	95	465	544
Total production	87,628	68,076	71,697	364,494	349,210
Daily average	2,827	2,269	2,313	2,414	2,297
Imports:					
Crude petroleum	2,206	2,910	5,089	14,119	24,375
Refined products	653	1,354	2,374	6,303	18,671
Total new supply, all oils	90,487	72,340	79,160	384,916	392,256
Daily average	2,919	2,411	2,570	2,549	2,581
Increase in stocks, all oils	9,555	†4,449	1,525	10,093	4,577
DEMAND:					
Total demand, all oils	80,932	76,789	78,135	374,823	387,679
Daily average	2,611	2,560	2,520	2,482	2,551
Exports:					
Crude petroleum	2,678	2,939	2,942	11,577	11,388
Refined products	5,499	6,732	8,891	28,445	36,636
Domestic demand, all oils	72,755	67,118	66,302	334,801	339,655
Daily average	2,347	2,237	2,139	2,217	2,235
Excess of daily average domestic production over domestic demand	480	32	174	197	62
STOCKS (end of month):					
Crude petroleum:					
East of California	304,866	296,983	325,302	304,866	325,302
California‡	38,722	39,516	42,737	38,722	42,737
Total refinable crude	343,588	336,499	368,039	343,588	368,039
Natural gasoline§	3,966	3,590	4,270	3,966	4,270
Refined products‡	250,648	248,558	264,891	250,648	264,891
Total stocks all oils	598,202	588,647	637,200	598,202	637,200
Days' supply	229	230	253	241	250
Bunker oil (included above in domestic demand)	2,726	2,826	3,242	13,845	16,344

*Based upon production of coke reported to Coal Division by those by-product coke plants that recover benzol products. †Decrease. ‡California heavy crude and residual fuel included under refined products. §Includes motor blends held at natural gasoline plants.

COMPARATIVE ANALYSES

(Thousands of barrels of 42 U. S. gallons)

CRUDE PETROLEUM:	May, 1933 Total	May, 1933 Daily av.	April, 1933 Total	April, 1933 Daily av.	Jan.-May, 1933	Jan.-May, 1932
Runs to stills:						
Domestic	71,006	2,290	65,913	2,197	333,164	328,713
Foreign	3,334	108	2,999	97	16,117	18,118
Total	74,340	2,398	68,822	2,294	338,281	346,831
Imports	2,206	71	2,910	97	14,119	24,375
Exports	2,678	86	2,939	98	11,577	11,388
MOTOR FUEL:						
Production	35,466	1,144	32,569	1,086	159,680	169,360
Imports	1	.....	1	.....	5	6,425
Exports*	2,129	69	3,256	109	13,233	17,730
Stocks, gasoline	55,067	.....	56,104	.....	55,067	64,865
Stocks, natural gasoline	3,966	.....	3,590	.....	3,966	4,270
Domestic demand	33,999	1,097	30,176	1,006	142,224	144,146
KEROSENE:						
Production	4,146	134	4,046	135	20,123	18,377
Imports	.....	.....	.....	.....	.....	9
Exports	610	20	718	24	3,501	4,323
Stocks	5,761	.....	5,230	.....	5,761	4,812
Domestic demand	3,005	97	2,925	98	15,835	14,583
GAS OIL AND FUEL OIL:						
Production	26,118	843	24,896	830	126,466	127,156
Transfers†	667	22	693	23	4,398	2,438
Imports	634	20	1,348	45	6,203	12,121
Exports	1,886	61	1,670	56	8,274	10,284
Stocks	125,975	.....	123,969	.....	125,975	129,573
Domestic demand	23,527	759	25,123	837	131,789	137,714
LUBRICANTS:						
Production	2,114	68	1,871	62	9,227	9,968
Imports	.....	.....	.....	.....	.....	8
Exports	653	21	863	29	3,318	3,203
Stocks	8,167	.....	8,330	.....	8,167	8,809
Domestic demand	1,624	52	1,390	46	6,117	7,449
WAX (thous. of pounds):						
Production	40,600	1,310	37,800	1,260	179,480	215,600
Imports	1,445	47	622	21	9,542	20,199
Exports	18,921	610	25,635	855	107,401	92,274
Stocks	124,770	.....	124,927	.....	124,770	194,973
Domestic demand	22,281	751	24,695	822	126,479	119,772
COKE (short tons):						
Production	145,400	4,690	137,600	4,587	631,800	740,000
Stocks	1,176,200	.....	1,148,900	.....	1,176,200	1,554,200
ASPHALT (short tons):						
Production	229,300	7,397	152,000	5,067	701,600	903,200
Imports (natural)	2,200	71	300	10	9,800	6,600
Stocks	297,600	.....	305,800	.....	297,600	414,190
ROAD OIL:						
Production	685	22	306	10	1,492	1,361
Stocks	1,237	.....	998	.....	1,237	986
STILL GAS:						
Production	4,232	137	3,557	119	17,295	16,482
MISCELLANEOUS:						
Production	129	4	101	3	541	1,008
Stocks	414	.....	442	.....	414	577

*Includes benzol, 11,919 bbls. in May, 1933. †Includes crude used as fuel and net transfers to fuel oil stocks.

INDICATED DOMESTIC DEMAND FOR CRUDE PETROLEUM

(Thousands of barrels of 42 U. S. gallons)

Domestic petroleum by fields of origin:	May, 1933 Total	May, 1933 Daily av.	April, 1933 Total	April, 1933 Daily av.	Jan.-May, 1933	Jan.-May, 1932
Appalachian:						
Pennsylvania Grade	1,831	59	1,680	56	8,558	9,382
Other (inc. Kentucky)	625	20	595	20	2,716	3,471
Lima-N. E. Ind.-Mich.	567	18	504	17	2,994	3,134
Ill.-S. W. Ind.	325	11	330	11	1,581	1,697
Mid-Continent:						
N. La. and Ark.	1,750	56	1,921	64	9,410	11,907
W. Texas-S. E. N. Mex.	6,290	203	7,053	235	31,712	36,415
Other (Okla., Kans., N. Tex., etc.)	42,147	1,360	36,962	1,232	181,484	176,337
Gulf Coast	6,231	201	5,702	190	29,376	20,131
Rocky Mountain	1,259	41	1,051	35	5,553	6,241
California	14,762	476	13,953	465	66,386	74,635
Total demand	75,787	2,445	69,756	2,325	339,770	342,009
Exports	2,678	87	2,939	98	11,577	11,388
Domestic demand	73,109	2,358	66,817	2,227	328,193	330,612
Foreign petroleum	3,227	104	2,973	99	15,573	16,535
Total domestic demand	76,336	2,462	69,790	2,326	343,766	347,147

PRODUCTION OF CRUDE PETROLEUM BY STATES AND PRINCIPAL FIELDS

(Thousands of barrels of 42 U. S. gallons)

	May, 1933 Total	May, 1933 Daily av.	April, 1933 Total	April, 1933 Daily av.	Jan.-May, 1933	Jan.-May, 1932
Arkansas	975	31	956	32	4,644	5,005
California:						
Kettleman Hills	1,920	62	1,797	60	8,969	9,097
Long Beach	2,271	73	2,211	74	10,495	12,288
Santa Fe Springs	1,669	54	1,618	54	7,962	9,953
Rest of State	8,953	289	8,637	287	42,637	45,487
Total California	14,813	478	14,263	475	70,063	76,825
Colorado	84	3	71	3	404	545
Illinois	313	10	284	9	1,471	2,180
Indiana:						
Southwestern	51	2	50	2	244	349
Northeastern	1	.....	1	.....	5	14
Total Indiana	52	2	51	2	249	363
Kansas	3,307	107	3,564	119	16,207	14,386
Kentucky	363	12	350	12	1,867	2,497
Louisiana:						
Gulf Coast	1,238	40	1,238	41	5,559	4,636
Rest of State	761	25	865	29	4,165	4,094
Total Louisiana	1,999	65	2,103	70	9,724	8,730
Michigan	527	17	464	15	2,260	2,410
Montana	174	5	159	5	797	1,068
New Mexico	1,098	35	1,092	36	5,392	5,652
New York	223	7	245	8	1,233	1,530
Ohio:						
Central and Eastern	259	8	264	9	1,323	1,498
Northwestern	82	3	79	3	400	452
Total Ohio	341	11	343	12	1,723	1,950
Oklahoma:						
Oklahoma City	4,179	135	3,102	104	20,913	16,409
Seminole	3,105	100	3,062	102	16,030	19,013
Rest of State	6,005	194	5,796	193	29,297	31,288
Total Oklahoma	13,289	429	11,960	399	66,240	66,710
Pennsylvania	1,045	34	992	33	4,924	5,318
Tennessee	.....	.....	.....	.....	1	3
Texas:						
Gulf Coast	5,721	184	4,613	154	22,297	15,869
West Texas	5,000	162	4,911	164	24,422	27,403
East Texas	27,591	890	19,467	649	76,510	50,777
Rest of State	6,608	213	7,235	241	33,852	36,080
Total Texas	44,920	1,449	27,226	908	157,081	130,129
West Virginia	313	10	288	9	1,443	1,656
Wyoming:						
Salt Creek	596	19	564	19	3,025	3,493
Rest of State	310	10	338	11	1,641	2,347
Total Wyoming	906	29	902	30	4,666	5,840
Total United States	84,747	2,734	65,313	2,177	350,289	332,797

STOCKS OF CRUDE PETROLEUM

(Thousands of barrels of 42 U. S. gallons)

EAST OF CALIFORNIA:	May 31, 1933	April 30, 1933	May 31 1932
At refineries by location:			
East Coast: Domestic	9,136	8,422	8,824
Foreign	4,240	5,213	9,613
Appalachian	2,400	2,363	2,392
Indiana, Illinois, Kentucky, Michigan	3,881	3,557	3,332
Oklahoma, Kansas, and Missouri	4,430	4,487	5,285
Texas: Inland	2,747	2,060	1,372
Gulf Coast: Domestic	6,288	6,021	7,045
Foreign	72	49	567
Louisiana Gulf Coast: Domestic	3,672	3,041	2,181
Foreign	838	909	2,154
Arkansas and Inland Louisiana	524	469	403
Rocky Mountain	12,611	12,466	1,709
Total	50,839	48,997	45,277
At refineries by origin:			
Pennsylvania Grade	2,227	2,168	2,056
Other Appalachian (inc. Kentucky)	581	552	797
Lima-N. E. Indiana-Michigan	211	295	185
Illinois-S. W. Indiana	148	146	116
N. Louisiana and Arkansas	2,480	2,566	1,196
West Texas and S. E. New Mexico	4,660	3,861	3,249
Oklahoma, Kansas, N. Texas, etc.	17,818	16,624	19,028
Gulf Coast	4,975	4,327	4,693
Rocky Mountain	12,589	12,377	1,623
Foreign	5,150	6,171	12,334
Total	50,839	48,997	45,277
Pipe line and tank farm:			
Pennsylvania Grade	4,411	4,596	4,917
Other Appalachian (inc. Kentucky)	789	945	872
Lima-N. E. Indiana-Michigan	738	701	1,378
Illinois-S. W. Indiana	11,306	11,268	10,634
N. Louisiana and Arkansas	10,844	10,763	15,629
West Texas and S. E. New Mexico	29,183	30,245	31,916
Oklahoma, Kansas, N. Texas, etc.	162,426	156,630	170,124
Gulf Coast	10,027	9,925	14,010
Rocky Mountain	15,603	15,863	24,794
Total	246,327	240,936	274,275
Total refinery, pipe line and tank farm	297,166	289,933	319,552
Producers'	7,790	7,050	5,750
Total crude east of California	304,866	296,983	325,302
CALIFORNIA: Light	38,722	39,516	42,737
Total refinable crude in the United States	343,588	336,499	368,039

RECORD OF WELLS FOR IMPORTANT FLUSH FIELDS*

	Completions Oil	Completions Gas	Completions Dry	Total initial prod. (bbls.)	Aver. initial prod. (bbls.)	Drilling May 31
Texas	261	13	142	(†)	(†)	629
East Texas	101	...	8	(†)	(†)	79
Gulf Coast	89	1	22	120,900	1,400	112
Conroe	61	...	2	102,900	1,700	36
Other	28	1	20	18,000	600	76
West Texas	8	...	8	800	100	99
California	19	...	14	17,400	900	103
Kettleman Hills	1	...	...	2,100	2,100	12
Long Beach	5	...	1	1,000	200	15
Playa del Rey	2	...	...	200	100	1
Oklahoma	54	8	36	22,300	400	276
Oklahoma County	4	...	...	12,900	3,200	16
Pottawatomie and Seminole Counties	5	...	1	3,500	700	34
New Mexico	6	...	2	14,000	2,300	46
Lea County (Hobbs)	4	...	1	14,000	3,500	5
Other states	114	39	88	33,000	290	911
Total United States	444	60	282	(†)	(†)	1,965

*From The Oil and Gas Journal and California office of American Petroleum Institute. †Not available.

RECEIPTS OF CRUDE PETROLEUM ON THE ATLANTIC SEABOARD
(Figures in barrels of 42 U. S. gallons)

Domestic—	Apr., 1933	Foreign—	Apr., 1933
Penna. Grade	445,000	Venezuela	1,968,000
West Texas-S. E. New Mex.	2,600,000	Colombia	563,000
East Texas	4,121,000	Mexico	265,000
Other Mid-Continent	1,324,000	Other	80,000
Gulf Coast	2,482,000		
		Total	2,876,000
Total	11,032,900	Total receipts	13,908,000

PRODUCTION OF CRUDE PETROLEUM BY DISTRICTS
(Thousands of barrels of 42 U. S. gallons)

	May, 1933		April, 1933		Jan.-May,	Jan.-May,
Appalachian:	Total	Daily av.	Total	Daily av.	1933	1932
Pennsylvania Grade	1,705	55	1,654	55	8,231	9,219
Other (inc. Kentucky)	498	16	485	16	2,560	3,263
Lima-N. E. Ind.-Mich.	610	20	544	18	2,665	2,876
Ill.-S. W. Ind.	364	12	334	11	1,715	2,529
Mid-Continent:						
N. La. and Ark.	1,736	56	1,821	61	8,809	9,099
West Texas-S. E. N. Mex.	6,075	196	5,971	199	29,680	32,894
Other (Okla., Kans., N. Tex., etc.)	50,795	1,639	33,226	1,108	192,809	167,953
Gulf Coast	6,959	224	5,851	195	27,856	20,505
Rocky Mountain	1,187	38	1,164	39	6,001	7,614
California	14,818	478	14,263	475	70,063	76,825
Total	84,747	2,734	65,313	2,177	350,389	332,797

SHIPMENTS FROM CALIFORNIA TO EASTERN PORTS IN UNITED STATES*
(Thousands of barrels of 42 U. S. gallons)

	May, 1933	Apr., 1933	May, 1932	Jan.-May, 1933	Jan.-May, 1932
Gasoline	1,137	926	928	3,907	3,193
Natural gasoline	.....	.....	72	81	145
Kerosene	82	80	.....	791	81
Gas oil and Diesel oil	71	88	80	1,286	268
Fuel oil	140	211	.....	728	.....
Lubricants	1	8	.....	17	19
Asphalt	.....	.....	1	.....	4
Miscellaneous	14	1	23	119	26
Total	1,445	1,314	1,104	6,929	3,736

*Compiled by E. T. Knudsen of the San Francisco office of the Bureau of Mines.

NUMBER OF WELLS COMPLETED IN THE UNITED STATES*

	May, 1933	Apr., 1933	May, 1932	Jan.-May, 1933	Jan.-May, 1932
Oil	444	472	964	2,526	3,637
Gas	60	48	77	319	476
Dry	282	257	271	1,401	1,249
Total	786	777	1,312	4,246	5,362

RUNS TO STILLS AND OUTPUT OF REFINERIES
(Thousands of barrels of 42 U. S. gallons)

	Crude oil			Unfinished oils rerun	Natural gasoline	Total input
INPUT—	Domestic	Foreign	Total			
East Coast	11,439	3,168	14,597	387	26	15,010
Appalachian	2,770	.....	2,770	294	17	3,081
Ind., Ill., Ky., etc.	9,537	.....	9,537	928	92	10,557
Okla., Kans., Mo.	8,031	.....	8,031	322	353	8,706
Texas Inland	5,313	.....	5,313	175	247	5,735
Texas Gulf	14,288	46	14,334	648	204	15,186
Louisiana Gulf	3,269	130	3,399	.....	25	3,364
Ark. and La. Inland	1,437	.....	1,437	370	37	1,844
Rocky Mountain	1,260	.....	1,260	122	74	1,456
California	13,722	.....	13,722	292	*666	14,680
Total	71,006	3,334	74,340	3,538	1,741	79,619

OUTPUT—	Gasoline	Kerosene	Gas oil and distillate fuels	Residual fuel oils	Lubricants	Wax (thous. of lbs.)
East Coast	5,658	776	1,098	4,001	713	21,280
Appalachian	1,386	228	217	379	384	5,880
Ind., Ill., Ky., etc.	5,844	348	561	1,556	165	1,120
Okla., Kans., Mo.	4,511	733	466	1,586	187	2,520
Texas Inland	2,768	326	206	1,802	32	280
Texas Gulf	6,585	899	1,347	3,546	435	3,920
Louisiana Gulf	1,183	199	495	876	26	4,760
Ark. and La. Inland	673	71	152	441	5	.....
Rocky Mountain	779	43	85	283	18	840
California	5,224	523	1,481	5,540	149	.....
Total	†34,611	4,146	6,108	20,010	2,114	40,609

OUTPUT—Cont.	Coke (tons)	Asphalt (tons)	Road oil	Still gas	Miscellaneous	Unfinished products	Shortage
East Coast	21,800	108,200	122	933	58	776	127
Appalachian	2,000	10,500	18	206	22	45	107
Ind., Ill., Ky., etc.	47,200	35,200	246	852	12	505	26
Okla., Kans., Mo.	22,800	5,300	22	416	29	310	294
Texas Inland	5,400	.....	32	125	11	96	309
Texas Gulf	35,200	12,700	8	1,052	3	715	336
Louisiana Gulf	3,800	14,700	19	129	.....	236	84
Ark. and La. Inland	200	7,800	13	50	4	329	62
Rocky Mountain	6,200	200	58	71	2	48	34
California	800	33,700	147	398	20	926	83
Total	145,400	229,300	685	4,232	129	3,989	1,462

*Includes 91,000 bbls. run through pipe lines. †Includes 499,000 bbls. special naphthas.

GASOLINE PRODUCTION BY THE VARIOUS METHODS, MAY, 1933
(Thousands of barrels of 42 U. S. gallons)

	Straightrun	Per cent		Cracked	Per cent		Nat. gaso.	Per cent	Gasoline	Per cent
	Total	(*)	(†)	Total	(*)	(†)	Total	(†)	Total	(*)
East Coast	2,435	16.7	43.0	3,197	21.9	56.5	26	0.5	5,658	38.6
Appalachian	639	23.1	46.1	720	26.3	52.7	17	1.2	1,386	49.4
Ind., Ill., etc.	2,261	23.7	38.7	3,491	36.6	59.7	92	1.6	5,844	60.3
Okla., Kans., Mo.	2,168	37.0	48.1	1,990	24.8	44.1	353	7.8	4,511	51.8
Texas Inland	1,784	33.6	64.5	737	13.8	26.6	247	8.9	2,768	47.4
Texas Gulf	2,836	19.8	43.1	3,545	24.7	53.8	204	3.1	6,585	44.5
Louisiana Gulf	650	19.5	55.0	508	15.2	42.9	25	2.1	1,183	34.7
Ark. and La. Inland	362	25.2	53.8	274	19.1	40.7	37	5.5	673	44.3
Rocky Mountain	386	30.7	49.6	319	25.3	40.9	74	9.5	779	56.0
California	2,949	21.5	56.5	1,609	11.7	30.8	666	12.7	5,224	33.2
Total	16,470	22.1	47.6	16,400	22.1	47.4	1,741	5.0	34,611	44.2

*Per cent of crude run. †Per cent of total gasoline output.

SHIPMENTS OF MOTOR FUEL BY PIPE LINES
(Thousands of barrels of 42 U. S. gallons)

	May, 1933	Apr., 1933	May, 1932	Jan.-May, 1933	Jan.-May, 1932
Motor fuel turned into lines	3,384	3,018	2,656	14,033	11,380
Motor fuel delivered from lines	3,374	2,992	2,671	14,005	11,062
Shortage	6	*3	1	11	19
Stocks in lines and working tanks end of month	1,215	1,211	1,261	1,215	1,261

*Overage.

STOCKS HELD BY REFINING COMPANIES MAY 31
(Thousands of barrels of 42 U. S. gallons)

	Gasoline				Gas oil and distillate fuels	Residual fuel oils
	At refineries	Bulk and pipe lines	Total	Kerosene		
Ark. and La. Inland	5,927	10,843	16,770	1,380	2,871	3,981
Appalachian	1,559	840	2,399	225	442	262
Ind., Ill., Ky., etc.	5,293	2,849	8,142	337	1,565	2,050
Okla., Kans., Mo.	3,905	1,473	5,378	394	794	2,291
Texas Inland	2,147	179	2,326	137	404	2,946
Texas Gulf	4,514	144	4,658	1,420	2,315	3,927
Louisiana Gulf	1,600	439	2,039	394	1,137	1,417
Ark. and La. Inland	261	106	367	24	163	594
Rocky Mountain	1,484	.....	1,484	170	141	386
California	7,067	4,437	11,504	1,280	3,058	95,322
Total	33,757	21,310	55,067	5,761	12,890	113,085

	Wax (thous. of pounds)			Coke (tons)
	Lubricants	Crude scale	Refined	Total	
East Coast	2,598	15,417	15,026	34,443	30,000
Appalachian	1,045	18,080	1,920	20,000	6,300
Ind., Ill., Ky., etc.	956	14,952	1,710	16,662	94,200
Okla., Kans., Mo.	451	1,601	1,112	2,713	138,800
Texas Inland	83	64	.....	64	114,500
Texas Gulf	1,880	2,063	12,005	14,068	513,000
Louisiana Gulf	82	4,658	3,919	8,577	74,800
Ark. and La. Inland	8	.....	.....	.....	100
Rocky Mountain	195	27,092	1,151	28,243	101,200
California	869	.....	.....	.....	103,300
Total	8,167	87,927	36,843	124,770	1,176,200

	Asphalt (tons)	Road oil	Miscellaneous products	Unfinished oils	Natural gasoline
East Coast	100,000	160	58	7,315	48
Appalachian	17,700	59	26	1,805	1
Ind., Ill., Ky., etc.	64,400	229	59	7,031	55
Okla., Kans., Mo.	3,100	223	20	4,134	20
Texas Inland	.....	24	12	1,000	5
Texas Gulf	5,900	15	11	11,806	257
Louisiana Gulf	21,300	17	.....	2,026	.....
Ark. and La. Inland	31,200	1	5	409	3
Rocky Mountain	3,100	204	10	2,083	2
California	50,900	305	213	*7,954	2,642
Total	297,600	1,237	414	46,063	3,033

*Includes 4,487,000 bbls. tops.

CRACKING OPERATIONS

Fresh cracking stock charged to stills (bbls.)	37,785,000
Gasoline produced by cracking (bbls.)	16,400,000
Fuel oil produced by cracking (bbls.)	12,466,000

Kansas Fields

(Continued from Page 42)

tion. A. Lykes and others' No. 1 Shell, C NL SE SE Section 31-25-11, is a location. Creiswell and others' No. 2 Dunlay, SE cor. NW NE Section 9-25-9, is a machine.

Ellsworth County

Aylward and Barnsdall Oil Co.'s No. 1 Warnhoff, NE cor. NW NE Section 26-16-10w, is a location. Derby Oil Co.'s No. 2 Stoltenberg, NW cor. Section 22-16-10w, is a rig.

Harvey County

Sinclair Prairie Oil Co.'s No. 2 Ediger, SE cor. NE SW Section 19-22-3w, is a location. Same company's No. 3 Ediger, SE cor. SE SW Section 19-22-3w, is a location. Same company's No. 4 Ediger, SE cor. SW Section 19-22-3w, is a location. Same company's No. 1 Neufeldt, SE cor. Section 18-22-3w, is a location. Same company's No. 4 Neufeldt, NE cor. SE NE Section 18-22-3w, is a location. Same company's No. 1 Schroeder, NW cor. NE Section 4-22-3w, is a location. Producers & Refiners Corp.'s No. 3 Martens, NW cor. SE Section 19-22-3w, made 1,020 bbls. from 3,420-23 feet.

Kingman County

Skelly Oil Co.'s No. 3 F. C. Miles, CNL NE Section 30-27-10w, is a location. Same company's No. 1 Ratcliff, CEL NW Section 30-27-10w, is a location. Same company's No. 2 Ratcliff, CSL NW Section 30-27-10w, is a location. Interurban Realty Co.'s No. 1 well, CNL SW Section 3027-10w, is a location.

McPherson County

Gled Oil Co. and others' No. 1 Schroeder, SW cor. SE Section 28-21-3w, is a location. The Texas Co.'s No. 5 Mun, NE cor. Section 12-20-2w, old well drilling deeper, is a rig. Lario Oil & Gas Co.'s No. 3 Hill, SW cor. SE SE Section 23-19-2w, is a location. Rolind Oil & Gas Co.'s No. 2 Thomas, SW cor. NE Section 26-19-2w, was drilling at 3,025 feet. Same company's No. 4 Thomas, SE cor. NW NE Section 26-19-2w, is a location. Same company's No. 5 Thomas, NW cor. SE NE Section 26-19-2w, is a location. Wakefield's No. 2 Koehn, NE cor. SE NW Section 36-19-2w, is a location. Same company's No. 3 Koehn, SE cor. NE NW Section 36-19-2w, is a location. Ozark Production Co.'s No. 1 Blair, SE cor. NW Section 32-19-1w, was drilling 100 feet. W. C. McBride, Inc.'s No. 2 Koehn, NW cor. NE Section 33-21-3w, at 3,442-50 feet made 548 bbls. Mylius and others' No. 2 Ediger, NE cor. SE SW Section 16-21-3w, made 150 bbls. from 3,444-48 feet.

Reno County

Mylius and others' No. 1 Patton, SE cor. NE Section 35-23-5w, is a location.

Rice County

Vickers Petroleum Co.'s No. 1 Specht, SE cor. NE Section 20-20-10w, made 1,023 bbls. from 3,329-54 feet. Slick and others' No. 1 Herzog, NE cor. SE Section 27-18-10w, made 742 bbls. from 3,248-58 feet. Same company's No. 1 Godfrey, NW cor. SW Section 26-18-10w, was abandoned at 3,328 feet.

Rush County

Interstate Producing Co.'s No. 1 Eitil, C SE Section 10-18-16w, is a location.

Sedgwick County

Shell Petroleum Corp.'s No. 8 Fisher, NE cor. NW SE Section 15-26-2, is a rig. Same company's No. 7 Lygrisse, SW cor. NE NE Section 15-26-2, is a location.

Stafford County

Atlantic Oil Producing Co.'s No. 1 Gates, C NW SE Section 27-21-13w, old well drilled deeper, was drilling at 3,714 feet.

Woodson County

Sheedy and others' No. 2 Barnaid, SW cor. NW Section 14-25-13, is a machine. Same company's No. 5 Mills, SE cor. SW NE Section 24-25-13, is a location.

DEATH OF F. W. PEEK, JR.

Frank W. Peek, Jr., chief engineer of the Pittsfield, Mass., works of the General Electric Co. and one of the company's specialists in high-voltage work, was killed July 26 when his automobile was struck by a train near Gascones, on the Gaspe peninsula of Canada. Mr. Peek lived about an hour after the crash. Mrs. Peek, who was with him on a vacation trip, was only slightly injured. Mr. Peek was probably best known for his work in the field of lightning research.

SERVICE ON NEW FIELDS

CRESCENT FIELD, LOGAN COUNTY, OKLAHOMA

Compiled by The Oil and Gas Journal, July 31, 1933

GENERAL INFORMATION

Location of field.

A new oil field was opened in Logan County, Oklahoma, on July 14 with the completion of a Wilcox sand well drilled jointly by Gypsy Oil Co. and Carter Oil Co., both with headquarters in Tulsa. This well is known as No. 1 Miller and is located in the center of 40 acres in Section 28-17n-4w, in the north central part of Oklahoma and on the west central side of Logan County. The location is about 4 miles southwest of the town of Crescent and Crescent is located about 12 miles northwest of Guthrie. Guthrie is the county seat of Logan County, and has about 15,000 population. It is located upon the main line of the Atchison, Topeka & Santa Fe Railroad running from Kansas City to the Gulf Coast in Texas. Oklahoma Highway 77, a paved road running north and south across the state, also passes through Guthrie. Guthrie is 35 miles north of Oklahoma City. A good paved and hard surface road known as Routes No. 31 and 44 connects Crescent and Guthrie.

Geographical position.

This new well is the second to find oil in the vicinity of Crescent, the first well drilled there having been completed as a Layton sand producer by the Eason Oil Co. and known as its No. 1 Katscher, located in SW cor. NE SW Section 34-17n-4w. There are two other fields in Logan County to the north of Crescent that are producing from the Wilcox sand. They are known as Roxana and Lovell Fields and are located upon the same trend of production as the new well and Oklahoma City Field to the south. Other fields in this portion of Oklahoma are Tonkawa, Garber and Billings, all located to the north, also the recently discovered pool south of Perry known as the Lucien Field. Guthrie is located on a paved highway about 100 miles to the west of Tulsa, 35 miles north of Oklahoma City and 115 miles south of Wichita, Kans. Crescent is about 5 miles north of the Cimarron River, which flows in an easterly direction through about the center of Logan County.

Highways.

The town of Crescent may be reached over a hard-surfaced road from Guthrie, located to the east, or over hard-surfaced Highway No. 33 from Kingfisher, located to the west of Crescent. There are no hard-surfaced highways passing through Crescent from north to south, but fairly good dirt roads connect this town with Covington on the north and the paved road on the south running into Guthrie.

Railroads.

Crescent is located upon a branch of the A.T.&S.F. Railroad that runs from Guthrie to Kiowa, Okla. This road runs north through Crescent and the towns of Lovell and Marshall, are also located on it to the north. Guthrie is located upon the Newton, Kans.,-Purcell, Okla., division of the A.T.&S.F. Railroad. A branch of this railroad runs from Guthrie to the town of Cashion, Okla., south of Crescent, where connection is made with a branch of the Chicago, Rock Island & Pacific Railroad out of Kingfisher, Okla. The Fort Smith & Western Railroad also runs into Guthrie from the east, but carries freight only. The Oklahoma Railway Co. has a 31-mile electric line connecting Guthrie and Oklahoma City. This line also handles freight. With this net work of railroads running into Guthrie it is possible to deliver carload freight into Crescent from any direction.

Cities and towns with supply houses.

At present supplies and equipment for drilling and producing wells in the Crescent Field are coming largely from Oklahoma City warehouses. Most manufacturers have stocks in Oklahoma City and can deliver equipment by truck to the wells in Crescent Field. Warehouses are also located at Covington, Garber and Blackwell, Okla., on the north. Material can also be delivered from Tulsa and all other parts of the state over paved roads.

Topography and drainage.

Logan County is in the wheat belt of Oklahoma and also has a great many dairy farms. The southern and eastern portions are regions of sandstone hills which are chiefly features of stream erosion and the northern and western portions are more typically red bed plains. The Cimarron River and its tributaries drain almost the entire county except the southeastern corner where drainage is to the North Canadian River. The relief of the county is about 340 feet, the lowest known point being on the Cimarron River just north of the village of Goodnight in Section 13-17n-1e, and the highest known point is about 3 miles northwest of Crescent in Township 17n, Range 4w, where the elevation is 1,160 to 1,180 feet above sea level. This point is about 5 miles due north of the Gypsy-Carter Oil Co.'s No. 1 Miller.

Warehouse sites.

Land suitable for warehouses will be available in the town of Crescent both along the railroad right-of-way and on other property located on good dirt roads. As this new well will probably start a period of active development in this general area, it is probable that some town will be selected by oil companies and manufacturers for the location of their field headquarters. For the field warehouses Crescent may be selected, but as Guthrie is a larger town and the county seat of Logan County it is probable that many of the company field offices will be located there because of accessibility to county records.

Trucking facilities.

Trucking contractors are available in all of the oil towns in this section of Oklahoma and many of them have their headquarters in Oklahoma City because of the recent activities there. Material can be delivered to location in the Crescent Field by trucks which can travel into the town over good roads. Highway No. 44, a good all-weather road, passes within 1½ miles of the east edge of the field as now outlined.

Hotel accommodations.

Good hotels are located at Guthrie, Oklahoma City, Perry and other nearby towns, with two or three rooming houses in Crescent with about the same number of eating houses. There are good restaurants in Guthrie. Good drinking water is available in Crescent and the field.

Electric power.

There are high-tension power lines in Guthrie that will be extended to the field and electric power will be made available for drilling and other power needs. At present there is a small electric plant in Crescent supplying the town with current for domestic purposes only. Guthrie has ample electric power for all purposes.

Gas.

The new well is reported to have produced on the first test 13,000,000 feet of gas along with the oil and the Layton sand also had a showing of about 1,000,000 feet, so plenty of gas for field use will be available immediately. Guthrie has regular gas service for domestic and industrial purposes.

Schools and churches.

Crescent is only a small village with the usual small town type of school. It also has one or two churches. Guthrie has a modern school system with several churches.

Principal leaseholders.

The Gypsy-Carter's No. 1 Miller well was drilled on an 80-acre lease owned jointly by those two companies. Gypsy Oil Co. and Carter Oil Co. also own the majority of the acreage in the township in which this new well is located. Other companies owning acreage within 2 or 3 miles of the well are: Minnehoma Oil Co., Tulsa; Continental Oil Co., Ponca City; the Texas Co., Tulsa; Sinclair Prairie Oil Co., Tulsa; Shell Petroleum Corp., Tulsa; Empire Oil & Gas Co., Bartlesville; Stanolind Oil & Gas Co., Tulsa; Skelly Oil Co., Tulsa; Magnolia Petroleum Co., Dallas, Tex.; Ramsey Petroleum Corp., Oklahoma City; Indian Territory Illuminating Oil Co., Bartlesville; Eason Oil Co., Enid; Twin State Oil Co., Tulsa; T. B. Slick Estate, Oklahoma City; L. R. Wentz, Ponca City; Phillips Petroleum Co., Bartlesville; Reiter-Foster Oil Corp., Tulsa; Barnsdall Oil Co., Tulsa, and Margay Oil Corp., Tulsa.

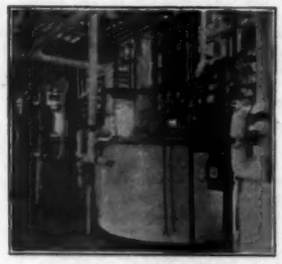
GEOLOGICAL DATA

In general.

The rocks exposed in this area belong to the Enid group of Permian red beds. Along the streams there is much alluvial

(Continued on Next Page)

30
TYPES OF GREASE
Each one scientifically compounded *for a specific use . . .*



Section of a Battery of Steam-Jacketed Kettles where greases are cooked

● No one, or two, or twenty greases will economically meet all automotive and industrial needs. Greases of different characteristics are required to maintain a protective film under the different conditions of pressure, temperature, motion and moisture which are confronted.

Realizing this, Pure Oil engineers and refinery experts have scientifically compounded a different type of grease for each specific need . . . 30 types in all, and most of these in several different grades. Grease making is an important Pure Oil operation.

Pure Oil greases are made of highest grade fats, and of oils selected because of their ability to protect bearing surfaces under specific operating conditions. They are free from non-lubricating fillers of every kind. The most modern equipment for the scientific and economical production of grease, coupled with expert supervision, insures uniform quality—exactly to specifications.

Whatever type of grease is required, Pure Oil can supply it—economically. Grease plants at Marcus Hook, Pa., and Muskogee, Okla., supplemented by conveniently located warehouses, insure quick delivery to any point.

For a can or a carload, phone, wire or write nearest office for prices and specifications.

REFINERIES:
Marcus Hook, Pennsylvania
Cabin Creek Jct., West Virginia
Heath, Ohio
Ardmore, Oklahoma
Muskogee, Oklahoma
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Chicago, Illinois
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Minneapolis, Minnesota
Philadelphia, Pennsylvania
Pittsburgh, Pennsylvania
Columbus, Ohio
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Atlanta, Georgia
Jacksonville, Florida
Tampa, Florida
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TP-266

SERVICE ON NEW FIELDS

Crescent Field, Logan County, Oklahoma

(Continued from Preceding Page)

and wind blown material. The Enid group has been subdivided by Aurin, Officer and Gould into six parts named in ascending order: The Stillwater formation, the Wellington formation, the Garber sandstone, the Hennessey shale, the Duncan sandstone and the Chickasha formation. So far as known no unconformities occur between the beds exposed in Logan County, except at the base of the recent deposits. For detailed description of the Enid group reference is made to Hubert E. Bale's report in Oklahoma Geological Survey Bulletin 40, "Logan County."

Layton sand series.

The Layton sand series is 60 to 200 feet in thickness and is characteristically a series of lenticular sands and shales. This lenticular character of the sands is often responsible for good shows of oil and gas and one well completed in the Crescent Field is a producer from this horizon. The Gypsy-Carter No. 1 Miller also had a showing of gas in the Layton sand.

Oswego-Big Lime series.

The Oswego-Big Lime series averages about 200 feet in thickness. It is one of the important key beds for subsurface mapping and often a part of the series is sandy and has good shows of oil and gas.

Cherokee shale.

The Cherokee shale is a dark shale and locally has a sand near the middle which is no doubt a near equivalent of the Bartlesville sand known to the east of this area. The top of the Cherokee shale was found at 5,650 feet in the Gypsy-Carter No. 1 Miller and the base at 5,815 feet. This gives it a thickness of 165 feet.

Mississippi limestone.

This section is missing in the Gypsy-Carter's No. 1 Miller well.

Chattanooga shale.

The Chattanooga shale lies unconformably on the Hunton limestone. In this well it was found at 5,815 feet and continued to 5,821 feet or has a thickness of 6 feet.

Hunton limestone.

The Hunton limestone is present in the greater part of Logan County as a white lime of varying thicknesses from 0 to 150 feet. It is reported as 42 feet thick in the Gypsy-Carter's No. 1 Miller but was not productive.

Sylvan shale.

The Sylvan shale, blue-green in color, rests on the Viola limestone and is probably conformable to it. The Sylvan shale is about 100 feet thick in No. 1 Miller.

Viola limestone.

The Viola limestone is present in Logan County as a hard white lime with an average thickness of about 50 feet. It rests unconformably on the Simpson formation below, and may be eroded away on the higher structures. It was found in Gypsy-Carter's No. 1 Miller at 5,963-6,018 feet and has a thickness of 55 feet.

Simpson formation.

The Simpson formation, made up of limes, shales, dolomites, and sands, was found in this new well between 6,018 and 6,141½ feet. The Wilcox sand, a member of the Simpson formation, is the productive sand in this well and the top of it was logged at 6,120 feet and a penetration of 21½ feet has been made. A typical section of this area is given below:

Horizon—	Depth
Foraker	2,100–2,250
Pawhuska	2,900
Hoover	2,900–3,250
Oread lime	3,500
Endicott	3,780
Tonkawa	3,950
Layton	4,580
Oswego	5,210
Cherokee shale	5,650–5,815
Chattanooga shale	5,815–5,821
Hunton limestone	5,821–5,863
Sylvan shale	5,863–5,963
Viola limestone	5,963–6,018
Simpson formation	6,018–6,120
Wilcox sand	6,120–6,141½
Total depth	6,141½

DEVELOPMENT

Discovery well.

This new pool was discovered and opened by the completion of a 5,000-bbl. oil well producing from the Wilcox sand at a total depth of 6,141½ feet. This well is known as Gypsy Oil Co. and Carter Oil Co.'s No. 1 Miller, located in the center of NE SE Section 28-17n-4w, in Logan County, Oklahoma. The lease is about 1 mile west and 4 miles south of the town of Crescent. The top of the Wilcox sand was penetrated on July 14 and the well drilled in about 20 feet. It was then shut down to permit the erection of tankage and oil and gas separators. It was tested on July 21 and produced 4,754 bbls. of 43 gravity oil in the first 20 hours. It was then again shut down because pipe line facilities were not available to take the oil away from the lease as fast as produced.

Previous development.

The first well to be drilled in Township 17n, Range 4w, was a shallow hole completed in the Layton sand. It is registered as Eason Oil Co.'s No. 1 Katscher, located in SW cor. NE SW Section 34-17n-4w, or south of the new well. The Layton sand was found at approximately 4,942 feet and this well was completed in that formation in November, 1930, as an 842-bbl. producer. This well is still producing. Another test was drilled in Section 10-16n-4w, about 5 miles south of No. 1 Miller, by the Ramsey Petroleum Co., and another test known as No. 1 Duck Club, in Section 10-16n-4w, which was also a dry hole in the Wilcox sand at 6,504 feet. This indicates that the area has two producing horizons, the Layton sand found at about 4,600 feet and the Wilcox sand at about 6,000 feet.

Operations August 1, 1933.

There are five tentative locations made, one each by Gypsy Oil Co. and Carter Oil Co., jointly, and Continental Oil Co. and three by Sinclair Prairie Oil & Gas Co. in this area all subject to further seismograph work and agreement upon relative position of the new wells.

Character of leases.

Most of the leases cover 80 and 160-acre tracts, with a few exceptions. There are a few 40-acre leases and some of them will expire in 1933 which will necessitate early drilling to retain title. The majority of the leases in this area have several years to run, but drilling will probably be started as development moves toward any property.

DRILLING PRACTICE

Drilling water.

Drilling water for the Gypsy-Carter discovery well was secured from a pond located on the lease. This water had been impounded for farm uses and consisted of rain and water pumped from shallow wells. It is reported that there is a shallow water sand at about 20 feet that is supplying water for farm purposes through this area. It is reported as good water that does not need treatment for use in oil field boilers.

Fuel.

Natural gas was used at the discovery well and was secured from the Eason Oil Co.'s well in Section 4-17-4w. Additional gas will now be available from No. 1 Miller as it is reported to have made 13,000,000 feet in the first test along with the oil. This gas can be taken off in the oil and gas separators.

Drilling methods.

All wells in this area have been drilled with rotary equipment during the past few years. This method will be continued and the work will be done both by contract and with company tools.

Drilling costs.

No. 1 Miller cost about $75,000 to complete. It is reported that the contracted drilling cost was $6.25 per foot plus gas and water. Future wells will probably cost about the same amount.

Drilling time.

It is estimated that it will require from 50 to 60 days to com-

(Continued on Next Page)

SERVICE ON NEW FIELDS

Crescent Field, Logan County, Oklahoma

(Continued from Preceding Page)

plete future wells in this district into the Wilcox sand. The discovery well was started April 15 and reached the top of the Wilcox on July 13, a total elapsed time of 59 days. The Wilcox sand is expected to be uniform in this field and found at a depth of about 6,125 to 6,150 feet.

Drilling equipment.

The Gypsy-Carter well was drilled with heavy type rotary outfit with three steam boilers and powered with steam engines and slush pumps. The usual type equipment and practice of the Oklahoma City Field will probably be followed closely in developing the Crescent area.

Drilling derrick.

On the discovery well a 122-foot all-steel heavy rotary type derrick was used. It has been left over the hole for the time being, and derricks of the same type will probably be used for drilling other wells in this district.

Drilling bits.

Rock bits of the cone and roller type were used in the discovery well supplemented by heavy drill stem and side reamers. This is the same practice as followed in Oklahoma City Field.

Drilling mud.

Admixtures were added to the natural rotary mud in drilling this first well and it is quite probable that weighting materials will be used in all future wells because it is now known that gas may be encountered in the Layton sand. The mud used has an average weight of about 10 pounds per gallon.

Casing.

Only two strings of casing were used in Gypsy-Carter's No. 1 Miller, the 15½-inch surface string about 250 feet long and the flow string of 9⅝-inch, 40-pound casing landed at 6,050 feet. It is quite probable that this two-string practice will be followed in drilling other wells but it may be that smaller diameter flow strings will be used.

Drill stem test.

Before completing the discovery well a drill stem test was made of the Wilcox sand. A number of other showings were also tested by this method, as well as by coring.

Blowout preventers.

While no blowout preventers were used on this well it is believed that on future holes at least one blowout preventer will be used to assure safety in drilling through the upper gas sands.

Straight-hole drilling.

On the discovery well the drilling contractor was required to make test of the condition of the hole every 250 feet below the first 1,000 feet to be certain that it was being drilled reasonably straight. This practice is now quite common in deep wells of this type and will probably be followed in future wells in this field.

PRODUCTION PRACTICE

Production methods.

The only Wilcox sand well, the new discovery, is now flowing naturally and with the quantity of gas accompanying the oil that has been reported it is safe to assume that it will continue to do so for a long time. This well has been classified as a wildcat by the corporation commission and is therefore now restricted to 50 bbls. daily allowable after it takes a 24-hour potential test Based upon the first flow the gas-oil ratio is about 3,000 feet of gas per barrel of oil. On a later test the well made 240 bbls. per hour and about 6,000,000 feet of gas per day. If the production rate allowed this field is restricted materially it is probable that tubing the wells will lower gas-oil ratio and conserve gas. This, however, is only a supposition at this time as no regulations other than those applying to wells classified as wildcats have been put on this new field. The only other producer in the township is Eason Oil Co.'s No. 1 Katscher, which is now pumping.

Oil gravity.

It is reported that the gravity of the oil from the Wilcox sand well is 43 degrees A.P.I. scale. This is about the same grade of oil as found in the Roxana-Lovell Field to the north of Crescent.

Water conditions.

No water was found in No. 1 Miller while drilling. This lack of water in upper formations as well as in the Wilcox is taken as an indication that the location is on a pronounced structure and any water that may be found in the various formations will be down dip from the present well.

Separators and tanks.

Two high-pressure separators were erected at No. 1 Miller and a battery of four low 500-bbl. steel tanks. It is anticipated that this tankage will be sufficient to handle the oil from this well, especially with pipe line facilities increased and under restricted rate of production.

Paraffin.

The fresh oil from the new well does not show the precipitation of any paraffin, which is a natural condition with oil of this gravity. What may develop later when the well has reached a pumping stage remains to be seen but it is quite probable that paraffin will make itself apparent on casing and tubing as it has done in the Oklahoma City Field and some treatment will be necessary.

Cut oil.

With no water present there is, of course, no cut oil. Wells drilled down dip near oil-water contact will probably experience the usual trouble with emulsions that have been common to Wilcox sand oils in other fields.

Shooting.

It was not necessary to shoot No. 1 Miller to bring it into production. Shooting will be resorted to in other wells if necessary.

Gas-oil ratio.

The original flow is reported at the rate of 5,000 bbls. of oil and about 15,000,000 feet of gas per day, or at a gas-oil ratio of 3,000 feet of gas per barrel of oil. This was reduced to about 1,000 feet on a second flow.

Bottom-hole pressure.

As soon as the well was completed and put on test a subsurface pressure instrument was run in the hole and it was found that the pressure opposite the Wilcox formation was about 2,800 pounds per square inch. This is higher than the original estimated pressure in the Oklahoma City Field because no bottom-hole pressure readings were taken in that field during its early life. Formation pressure has been estimated as high as 2,660 pounds in the Oklahoma City Pool, with shut-in well head pressures registering as high as 2,000 pounds per square inch.

Proration restrictions.

The Oklahoma Corporation Commission has ordered that all wildcat wells shall be restricted to 50 bbls. of production per day. When the well owners in a new pool appear before the commission and prove that they have legitimate market for additional oil this daily allowable probably will be increased to suit the new market demand.

PIPE LINES

There are two pipe lines passing within a mile of the discovery well. The Champlin Pipe Line Co. has an 8-inch line that runs from Oklahoma City to Enid and the Cimarron Valley Pipe Line Co. has a 4-inch line from the Eason Oil Co. well to their refinery at Enid. A branch from this latter line has been laid to Gypsy-Carter's No. 1 Miller and is taking the oil from that well. These two pipe lines are the only ones in this township at present but the Shell Pipe Line Co. has a line into the Lovell-Roxana Pool to the north of Crescent.

The main line of the Continental Oil Co. between Oklahoma City and Ponca City runs about 14 miles east of the discovery well in Township 17. The Carter Oil Co. can be served by the line of the Oklahoma Pipe Line Co., now laid into Oklahoma City 35 miles to the south, by laying a branch to this new well. The same is true of the Gypsy Oil Co., which has a line into Oklahoma City.

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THE OIL AND GAS JOURNAL Tulsa, Oklahoma.

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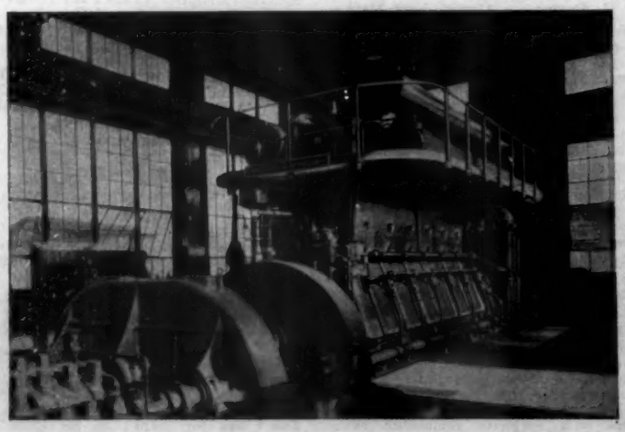

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